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Sideman to the Stars

MIKE GARSON
Bowie's Virtuoso on Healing Music

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You'll Take the Blue Pill

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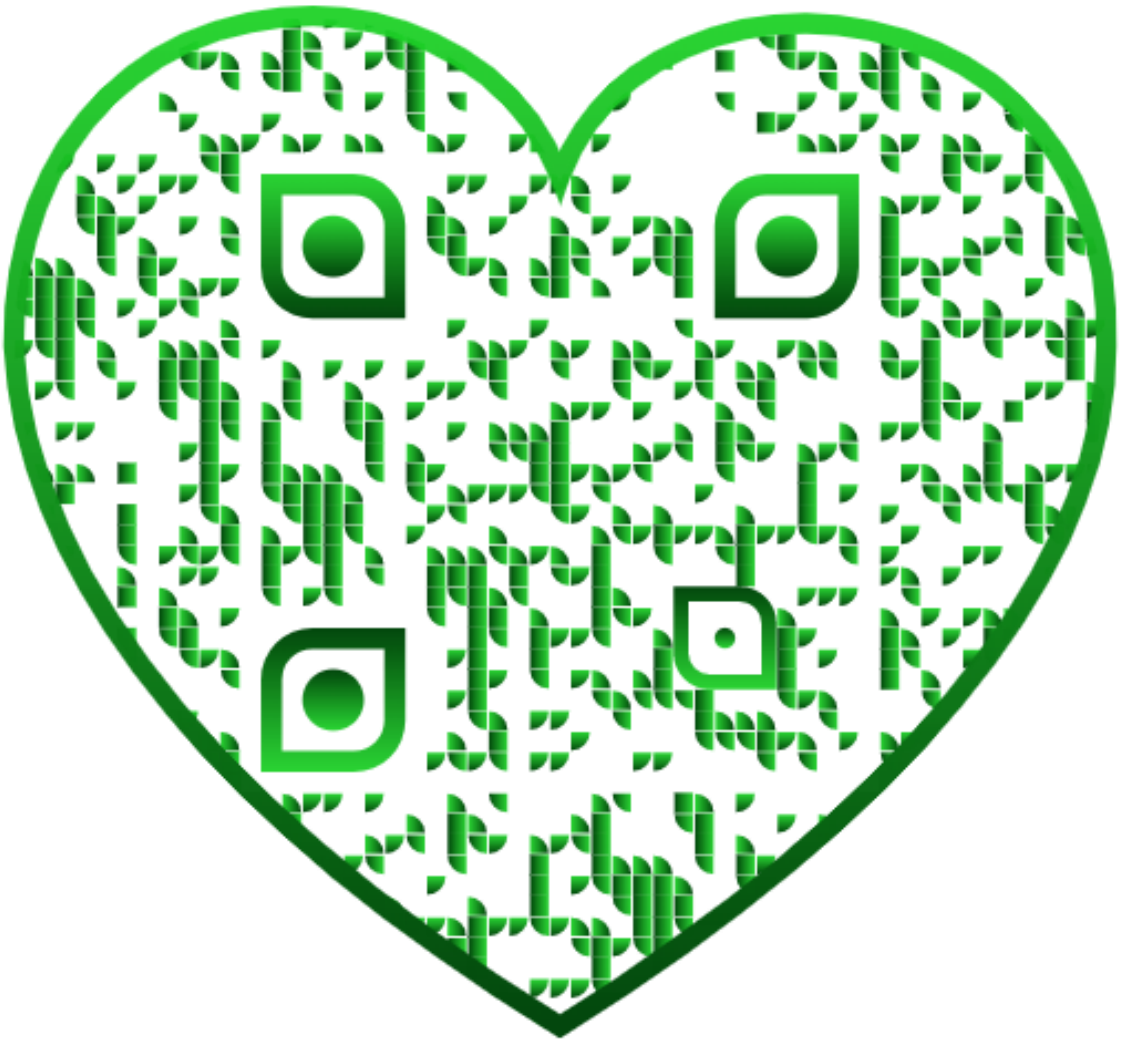
MARCH 2015



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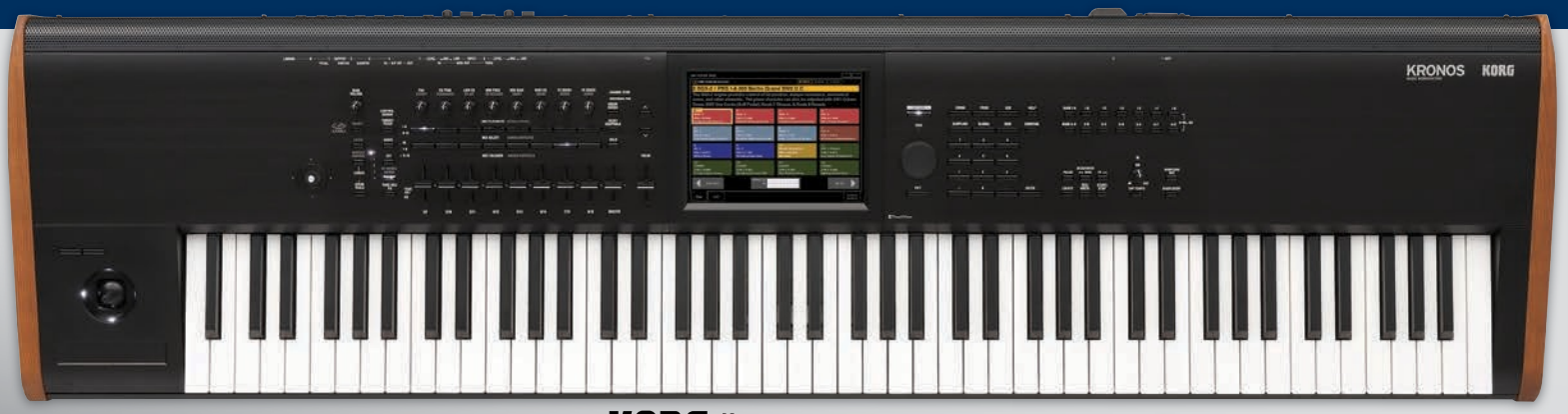

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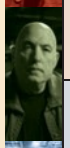

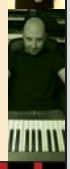

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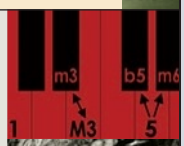

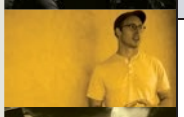
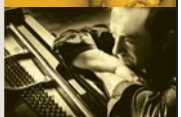

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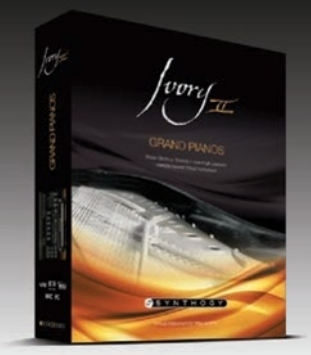

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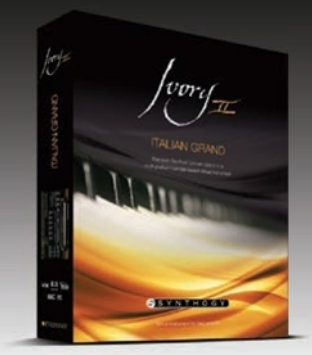

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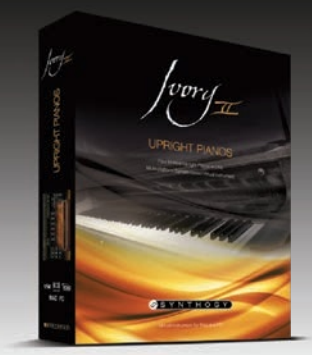

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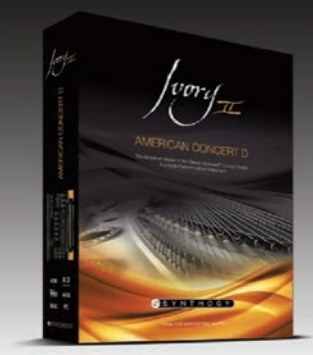

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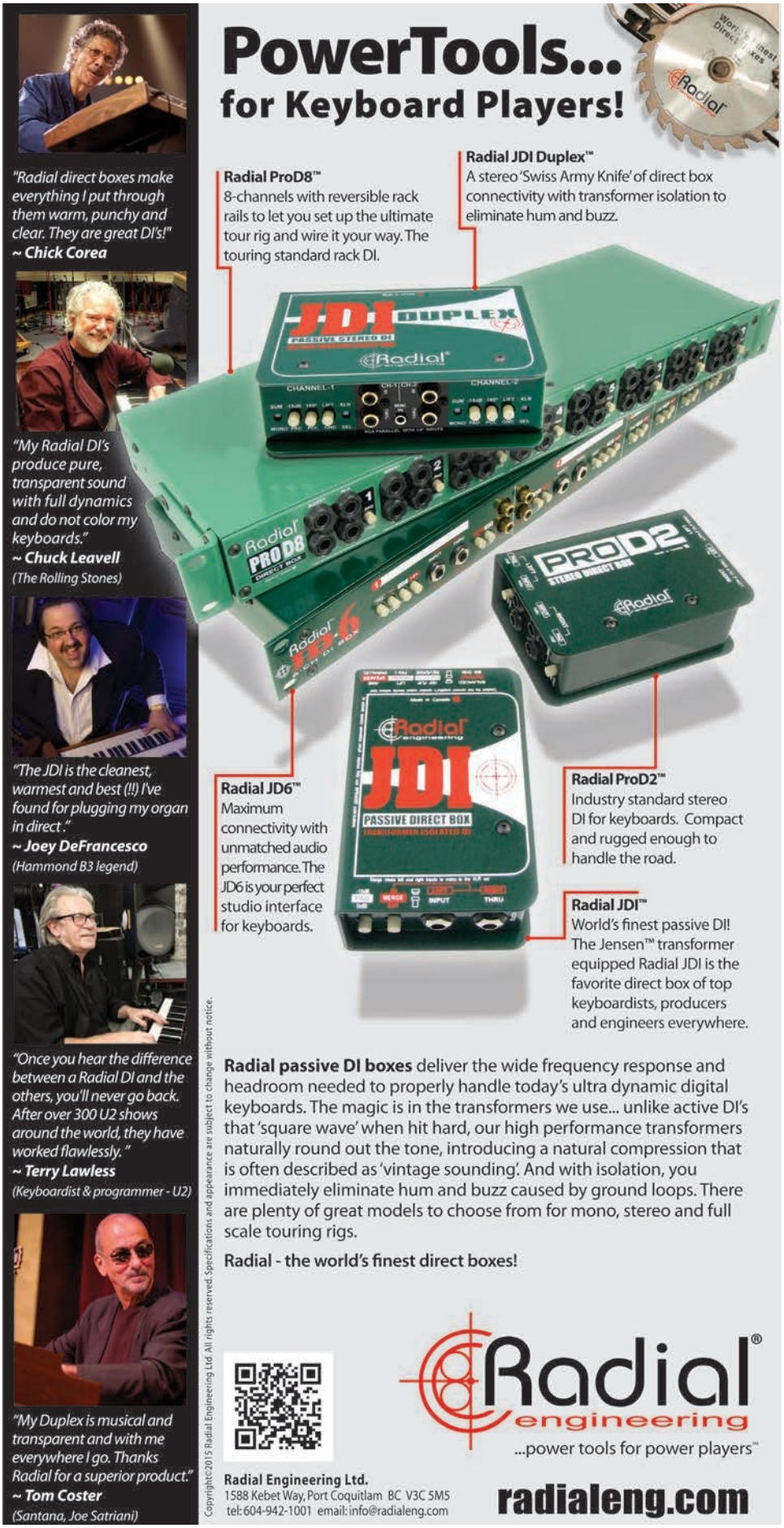

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Editor's Note

Gregg Rolie's playing in early Santana wasn't the first time I heard and loved a Hammond organ through a Leslie speaker. (That distinction is a tie between Booker T.'s "Hip-Hug-Her" and a tune by Earl Grant called—no joke—"Steve's Theme," both of which I had on 45-rpm singles.) However, Rolie was definitely the first B-3 player I actively tried to copy.

I was maybe seven or eight, and my mom and I were at the Radio Shack in a local mall. Normally I would've been transfixed by the TRS-80 computers and the Realistic/Moog synthesizer on offer, but this time, they had a stereo set up in front for a demo. Santana's album *Caravanserai* was playing on cassette, and we walked by the display at the exact moment of Rolie's blazing solo on the song "All the Love of the Universe." I asked a store employee to rewind it so I could hear it again. And again.

My proper, Catholic mom had a penchant for Latin music (flamenco and Cuban composer Ernesto Lecuona in particular) and therefore sort of "got" Santana, so I was allowed to spend my chore-earned allowance money on albums like *Abraxas* because, hey, thank goodness I wasn't begging for Ozzy Osbourne like my classmates.

We happened to have a Hammond T-series spinet (with a single-rotor internal Leslie) in the house that we shared with my maternal grandparents, and I quickly discovered I could get the tone pretty close to what I was hearing on the records. So the more portable of our two phonographs went atop the organ, and I tried to cop Rolie's riffs to the best of my ability. This would lead both to my discovering jazz greats like Jimmy Smith and later Santana shredders like Tom Coster and Chester Thompson.

All keyboardists can cite influences and heroes, but a smaller subset of those stands out as *why* we became keyboardists. Gregg Rolie is at the top of that list for me, and so featuring him in this issue is a privilege that feels very personal.

Stephen Fortner

Stephen Fortner
Editor

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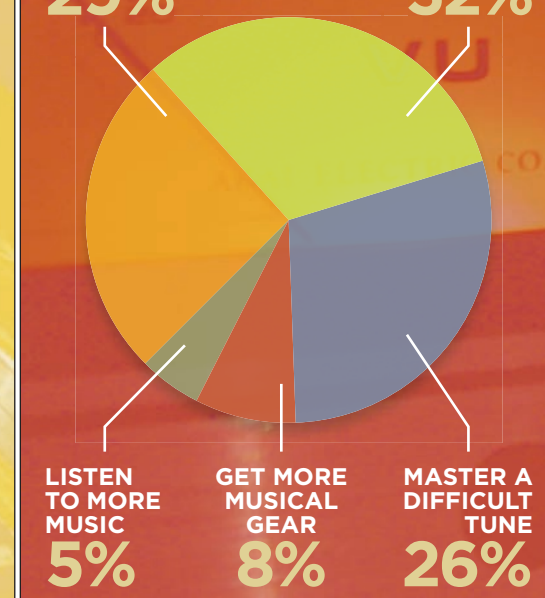
My First *Jazz Improvisation* Aaron Goldberg

Though New York jazz pianist Aaron Goldberg began his musical education as a classical pianist—with no thought of ever improvising or playing by ear—everything changed during his sophomore year of high school. "Bob Sinicrope, math teacher by day and jazz bassist by night, had convinced my school to let him teach a jazz improvisation class, and 25 years later, he's now president of Jazz Educators Network," says Goldberg. "I'll never forget my audition in June 1988. I played a Bach prelude. Bob asked me to play a *C* major triad, and I had to ask him what that was. He asked if I knew any chords. I still didn't know what he meant, so I launched into Rachmaninoff. But I knew my major and minor scales and could play in time, so I guess he figured he had something to work with." Sinicrope gave Goldberg a cassette tape containing classics by the likes of Horace Silver, Art Blakey, Miles Davis, and Herbie Hancock and told him to listen during summer break. "That's all I listened to all summer, that one tape, over and over again until my Walkman munched it into magnetic spaghetti and I fell in love with the music," says Goldberg. "By the time I came back in the fall, without realizing it, I could sing a portion of the solos," he continues. "I still had no idea how to improvise, no idea how it was even possible. But when Bob told me to just play what I heard in my head, out came a phrase of Miles, out popped a few Horace gems amidst my own nonsense, and then later, even a half-decent phrase of my own. I was hooked." For more, visit aarongoldberg.com. Michael Gallant

THE Keyboard POLL

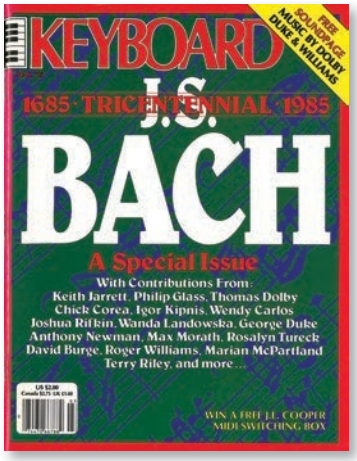
WHAT WOULD YOU MOST LIKE TO DO MORE OF IN 2015?



Polls rotate every two weeks, and can be found at the bottom of our homepage.

Key Secrets Distortion Is Art

One of my favorite tips comes from Gary Rydstrom, the seven-time Academy Award-winning sound designer: "Distortion is art." Specifically, he was talking about bringing tornado sounds to life, but distortion is also a terrific musical tool. There's fuzz, of course: Spectrasonics' Eric Persing called the Boss GL-100 (pictured) one of his magic boxes. That clipping distortion makes simple sounds brighter, richer, and more human. "I don't think there would *be* a Crystal Method without distortion," Scott Kirkland once told me. You can also distort a composition. Make your music more artful by exaggerating tempo, transposition, setting (via mic position or reverb), duration (via granular synthesis), and even lyrics (via hyperbole). David Battino



+ 30 YEARS AGO TODAY

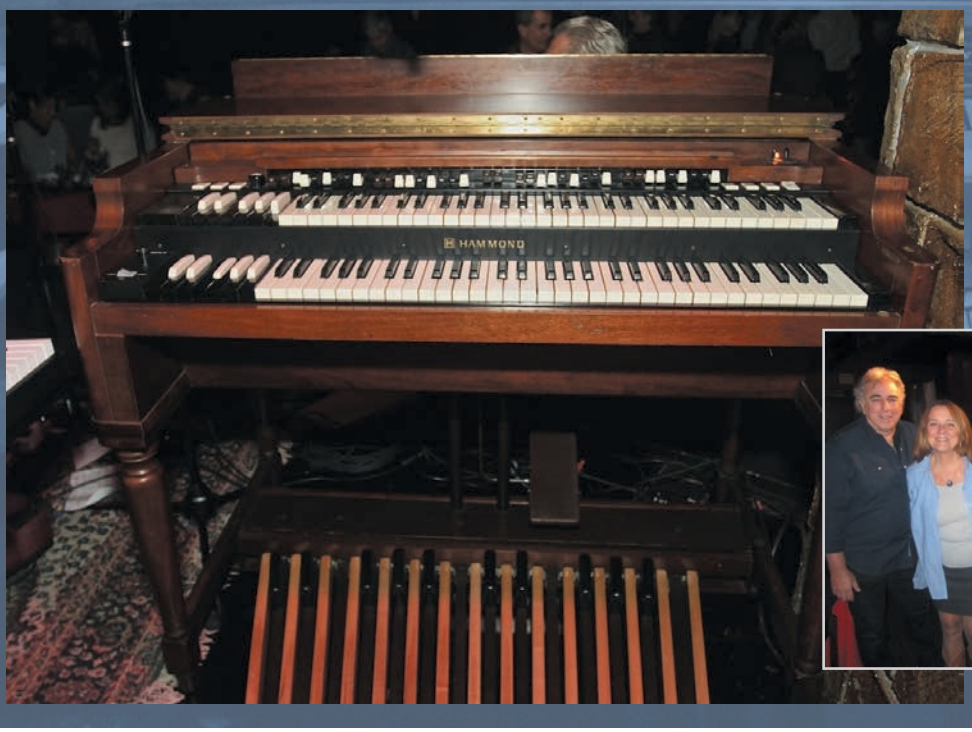
Keyboard's March 1985 issue was a star-studded celebration of **Johann Sebastian Bach**'s tricentennial. Some of our favorite players—including **George Duke**, **Marian McPartland**, **Wendy Carlos**, and **Chick Corea**—shared original sheet music that illustrated what their playing owed to Bach. **Keith Jarrett**, **Rosalyn Tureck**, **Philip Glass**, and **Joshua Rifkin** discussed the importance of Bach in the modern world. Edging a little further back to the 20th century, Bob Moog's column focused on "Bach, Carlos, and the Synthesizer." And still further: We reviewed Casio's CZ-101 digital mini-synth as well as Yamaha's RX11 drum machine. To support our Big Book of Bach, the Baldwin Piano Company filled eight ad pages. In real time, we are working behind the scenes to bring you another very special issue this coming fall: celebrating *Keyboard*'s 40th anniversary. Stay tuned! Barbara Schultz

"When we first introduced the SD-10, a critic wrote, 'If Beethoven had had a piano like this, the course of music would have been radically altered. It's that kind of talk that keeps me going back to the drawing board.'"

"I don't know what they're doing at Baldwin, but we've never seen instruments of finer quality from anyone."

SCENE AND HEARD

Historic Hammond >>



The Cutting Room—a New York City music venue co-owned by Berklee College alumnus Steve Walter and actor Chris Noth (*Law & Order*, *Sex and the City*)—recently took delivery of a not-so-new instrument: a Hammond B-3 once owned by the original Young Rascals. Lead singer Eddie Brigati (pictured below, far right) had put the organ, used on iconic Rascals songs such as "Groovin'," "It's a Beautiful Morning," and "Good Lovin'" in storage years ago. To make the instrument spotlight-ready again, it was cleaned and restored by Paul Studer, who worked under Hammond in the original factory in Chicago. Today, the organ lives on the Cutting Room stage, and is available to visiting artists. "The Cutting Room is the vortex of the music scene in New York City and Steve Walter is the curator," says Brigati. "This organ couldn't be in a better place." Barbara Schultz

NEW GEAR

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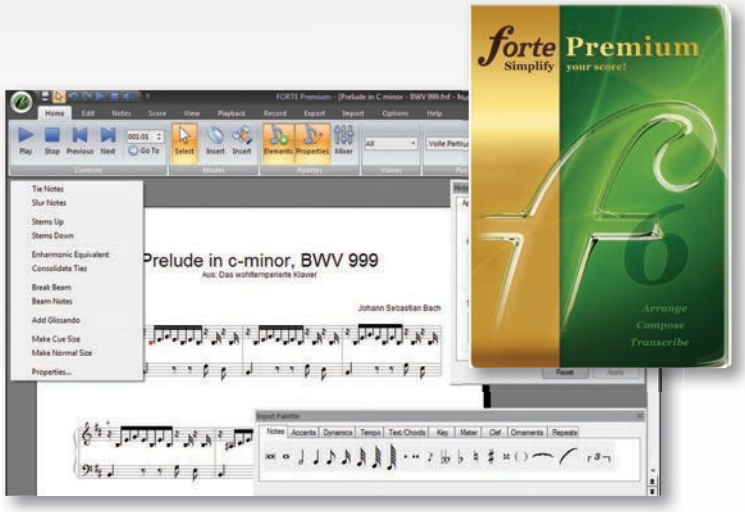
ROLAND JD-XI

WHAT Hybrid synth that combines analog circuitry and SuperNatural digital sound technology with a 37-note mini keyboard, a four-track pattern sequencer, USB MIDI, and a gooseneck mic for the built-in vocoder and voice processing effects.
WHY It combines an analog synth with a complete music production system and TR-style beat programming.
$TBD | rolandus.com

ARTURIA V-COLLECTION 4

WHAT A baker's dozen of virtual instruments that model classics by ARP, Moog, Oberheim, Roland, Sequential, Solina, Vox, Wurlitzer, and Yamaha, with Spark 2.0 software included for good measure.
WHY It's a cost-effective way to harness top-quality virtual vintage synths using a one-stop system of authorization.
$399 | arturia.com

FORTE NOTATION 6

WHAT Musical notation software for Windows that handles up to 32 4-voice staves, provides compound meters and part extraction, and supports XML, WAV, and MP3 files.
Why Designed for ease of use, the app is available at four price points, as well as a 30-day free trial.
Free-$229 | fortenotation.com

SAMPLE LOGIC CYCLONE RETWISTED

WHAT Full-featured, soft sampler-based (Kontakt 5) instrument offering a dual-voice additive synth engine, Step and FX Animator sequencers, and nearly 3GB of 24-bit content.
WHY In addition to greatly expanded modulation capabilities and a multi-voice pitch section, the update includes the Glow Multi expression pack.
$349.99 | upgrade $49.99 | samplelogic.com

MAGIX SAMPLITUDE PRO X2 SUITE

WHAT Windows-based digital audio workstation featuring zPlane time-stretching/pitch-shifting, multitrack Elastic Audio, modeled analog effects, the Independence sampler, an amp modeler, and a variety of new virtual instruments.
WHY This major upgrade includes VST3 support and improvements in routing, arranging, and automation.
$999 | magix.net

ANTARES AUTO-TUNE 8

WHAT Pitch-correction plug-in (AAX, AU, VST3) for studio and live use that provides active editing tools during playback and adjustable levels of correction.

WHY The new ultra-low-latency mode improves real-time processing while the Flex-Tune capabilities retain your nuanced phrasing.

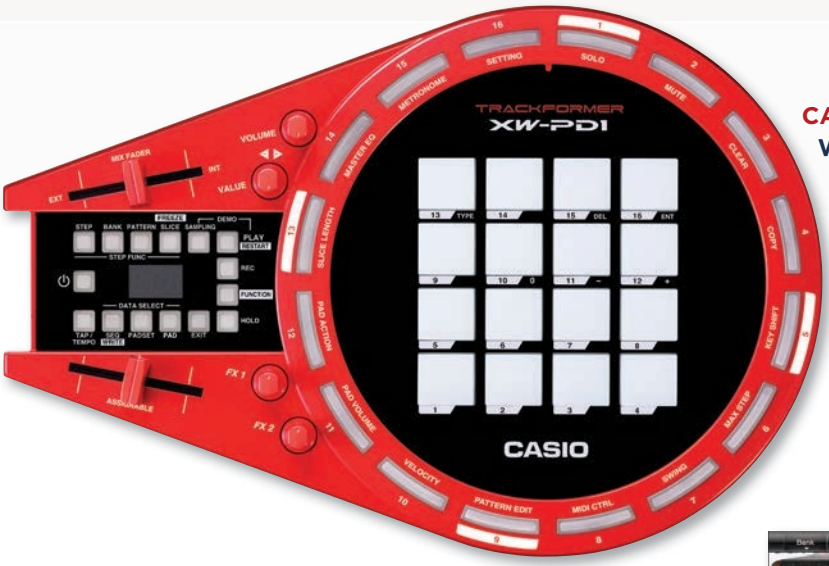
$399 | antarestech.com

ROB PAPEN RAW

WHAT Two-oscillator soft synth devoted to distorted tones. It offers waveshaping, pre-and post-distortion EQ, and the ability to draw your own LFO waveforms.

WHY It provides the crunchy modern sounds and low-frequency wobble that kids just love.

$179 | robpapen.com



CASIO XW-PD1 GROOVE CENTER

WHAT A beat-production instrument featuring 16 velocity-sensitive pads, DSP-based effects with controllers, and a sound engine derived from Casio's XW series synths, with presets based on a variety of popular electronic music genres.

WHY Adds real-time performance to your DJ or live electronica rig—and looks like Jesse James customized the Millennium Falcon.

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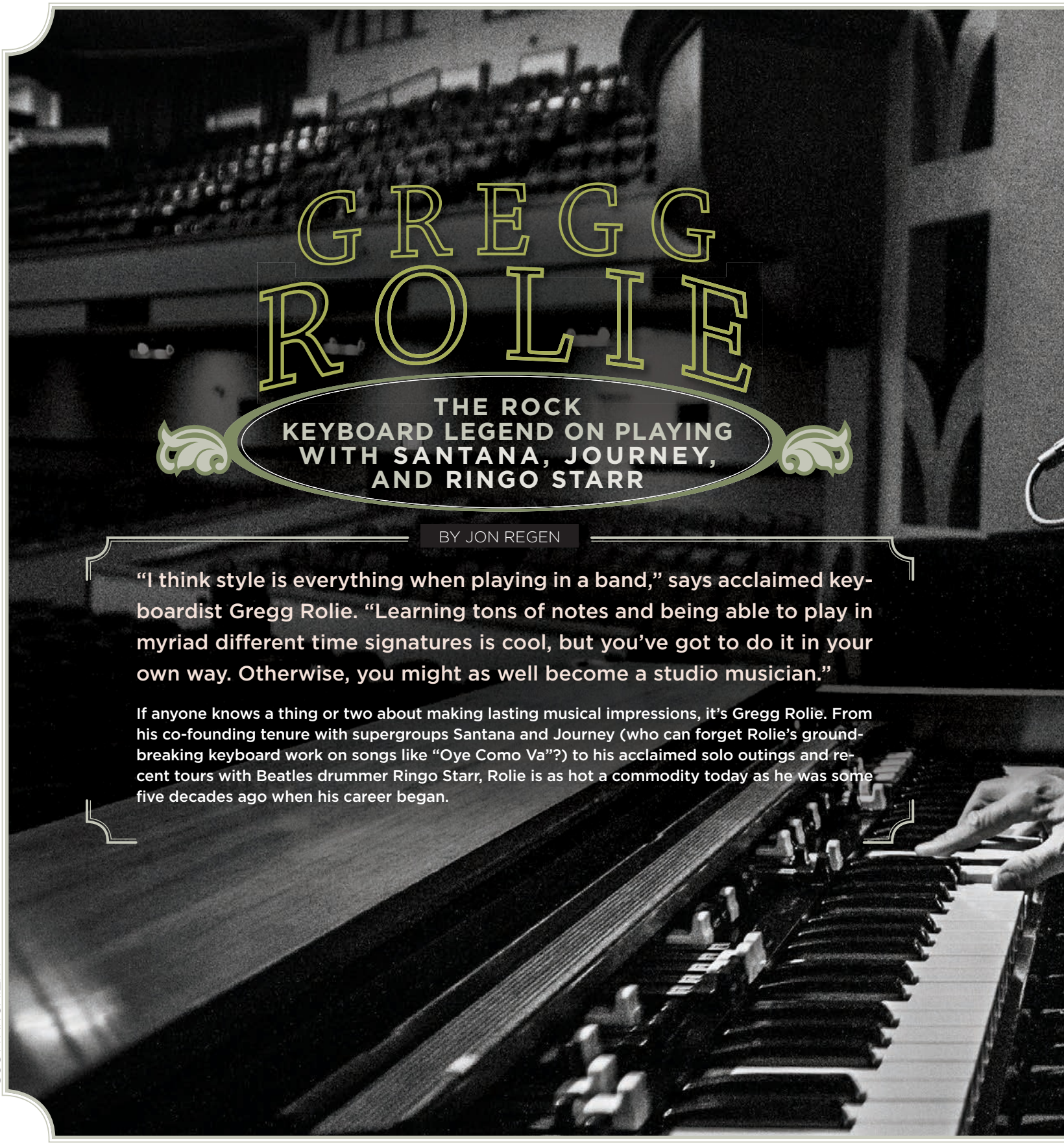

GREGG ROLIE

THE ROCK KEYBOARD LEGEND ON PLAYING WITH SANTANA, JOURNEY, AND RINGO STARR

BY JON REGEN

"I think style is everything when playing in a band," says acclaimed keyboardist Gregg Rolie. "Learning tons of notes and being able to play in myriad different time signatures is cool, but you've got to do it in your own way. Otherwise, you might as well become a studio musician."

If anyone knows a thing or two about making lasting musical impressions, it's Gregg Rolie. From his co-founding tenure with supergroups Santana and Journey (who can forget Rolie's groundbreaking keyboard work on songs like "Oye Como Va"?) to his acclaimed solo outings and recent tours with Beatles drummer Ringo Starr, Rolie is as hot a commodity today as he was some five decades ago when his career began.

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Midway through a recent tour with Ringo, Rolie met with *Keyboard* in midtown Manhattan to reminisce about his contributions to some of the most memorable music of our time.

The first thing I thought when I saw you playing live with Ringo Starr recently was how immediately identifiable your sound on the organ is. How were you introduced to the Hammond B-3?

People always ask me how I got my organ sound on those early albums with Santana. It's really simple: The Leslie speaker was beat to death and turned all the way up! I bought my first Hammond B-3 organ from a little old lady in Menlo Park, California. It was absolutely beautiful and only cost me $1,100 with a 122 Leslie, which was a total steal at the time. This was around 1966 or '67, when I joined Santana. In the beginning, that organ sounded really clean. But as the years went on, and from it being constantly loaded in and out of vans, the sound got dirtier. Later on, I got one of the first "chopped" B-3s by Bill Beer in Los Angeles, and we started experimenting with different percussion and tuning modifications. But initially, my organ sound started with a road-beaten 122 Leslie.

"IF YOU CAN'T REMEMBER A SONG WITHOUT SHEET MUSIC, YOU PROBABLY SHOULDN'T BE PLAYING IT."

From the start of your musical career, did you always want to focus on organ?

Yeah. When I started out in Santana, I played a Stage model Fender Rhodes 73 and a Hammond B-3 organ. I had a wah-wah pedal on the Rhodes, but that was it. Later in the 1980s, I played synthesizers and other keyboards, too, but for me the organ was where everything began.

Did you study music formally?

I took piano lessons for a few months as a kid growing up in Palo Alto, California, but I hated them. It was more about sibling rivalry for me at that time. My older brother took piano lessons so I decided I would as well. "I can do that," I said. In the beginning, I liked music, but I really had no designs on making a life in it. But when the Beatles exploded in America, that's when I started thinking about a career in music. And now I'm playing with Ringo Starr! All the guys in his current band say the same thing—that if it hadn't been for the Beatles, they might not have gotten into music. People started bands all over the world because of what the Beatles and the Rolling Stones did.

When I listened to music as a kid, I didn't care what kind of music it was. I either liked it or I didn't like it. Looking back on it now, usually what drew me to a particular type of music was either its rhythm or its soulfulness. When I heard Jimmy Smith's version of "Walk on the Wild Side" around 1962, I didn't even know what a Hammond B-3 was. But I thought the music was awesome. I also liked Lionel Hampton playing the vibes. My musical taste ran the spectrum from jazz to Bo Diddley to the Beatles and beyond.

Was it hard to make the jump from appreciating music as a listener to performing it live in front of an audience?

After the Beatles exploded, I started playing in different high school bands. I remember playing piano on the song "Tall Cool One" by the Wailers, and people went nuts! So I started playing in other bands, and bit by bit, things started to develop. I didn't have an organ at the time; I usually just played whatever piano was at the venue and I sang on some songs, too. Then I met the guys from the band William Penn and his Pals, which had been popular top-40 band in the San Francisco Bay area at that time. I'd heard about them, but I had no idea that some of them actually went to my high school. They came to my door and said, "We heard you can play!" So I joined their band, and I began playing a Vox Continental organ, because we wanted to sound like Paul Revere and the Raiders. That's when I really started getting into playing organ. I spent approximately a year and a half with that band. We started writing our own music and I began singing more.

How did you end up joining Santana?

Santana actually began when high school friends Carlos Santana, [percussionist] Mike Carabello, [bassist] Gus Rodriguez, and [drummer] Danny Haro played at the Fillmore in San Francisco on a Tuesday night. A friend of mine from Palo Alto named Tom Fraser saw them play and said to me, "I'm gonna go find this guy!" So he drove 30 miles up to San Francisco and asked someone at the Fillmore how he could find Carlos. They told him that he worked at a hamburger stand called Tick Tock's on Columbus Street. My friend found him there and said, "I want you to come jam with Gregg Rolie down in Palo Alto." So he brought Carlos down and we played together in a little farmhouse in the middle of nowhere. This was of course, back in the days of heavy marijuana usage, and someone evidently called the cops because of the noise. I turned to Carlos and said, "We've gotta get out of here!" But coming from the streets of Tijuana, he was way ahead of me. We all ran out of the farmhouse and hid in a tomato patch until the cops left! And that's how it all started. It's funny—I found out later that Carlos and Mike had actually come out to see me play with William Penn and his Pals at the Longshoremen's Hall in San Francisco because they were looking for a keyboard player. But nobody ever told me about it!

By this time, did you feel like you had a solid command of the keyboard?

Yeah, a pretty solid one. I think it was because I was self-taught. I could play just about in every key, although sharp and flat keys are still a little uncomfortable for me. I don't know if it's because of the fingerings, or because my fingers are too fat for them. You can't really rip into an organ in the key of *G♭* anyway. But playing in *C* through *A* is awesome!

Can you talk about how your musical perspective evolved after joining Santana?

When I joined Santana in 1966, my entire musical world was changing around me. I had gone from playing in a Top 40 band to investigating a more blues-centered sound. I started playing the Hammond B-3, and I was getting turned onto all kinds of new music. Carlos hipped me to blues guitarists like B.B. King and Muddy Waters. And when Tom Fraser didn't work out as the lead singer, I jumped in—almost out of necessity—and said, "I guess I'll do it!" I was sort of the Phil Collins of my day. Funds were tight in the beginning. I didn't even have money for a Rhodes back then. In fact, my grandmother bought some of the first amps Santana used. We really started in the garage. But I just loved it. I've never really talked about this before, but even back then, Carlos was playing his own style of music. He played through a little Viscount amp, but he had this tremendous tone. I remember us playing a song called "Shim Shim Sharee," which had a jazz form to it and was in 6/4 time, and Carlos wasn't just playing blues licks. He played with an incredible sense of melody and fire from the start.

One of the intriguing things about your work with Santana is how much of an ensemble player you were. You were center stage, but you never stepped on anyone else musically.

I always tried to do that, and I still play to try and lift the band up. I think the simplest way to put it is, I love guitar but I just can't play one! And so I fashioned much of my solo work with that attitude in mind, like the way guitarists can slide or bend into notes, or the way they use tremolo and other effects. I developed my own style by listening to everything *but* keyboards. Getting a guitar player to play at his absolute best became a goal for me. I wanted to push them to higher and hotter places.

The Hammond can take up a lot of sonic space if it's not played with care. Do you consciously voice your chords so as to be aware of this?

Absolutely. I play chords in the "1 and 3" or "1 and 5" formation, and often leave my left hand out except when it's needed. "Don't step on the bass player" is a good rule of thumb. The organ is so huge that if you play it full-out—except in situations where that kind of playing is called for—your band becomes an organ band.

Do you play the bass pedals?

No. I put those away when I bought that first organ! [*Laughs*.] I tried them and thought, "This is never gonna happen." Plus, why would I need them? We had a bass player.

How did Santana's music develop over time?

We just jammed. The song "Soul Sacrifice" started as a jam and after we played it over and over again, it developed a personality and a melody all its own. We weren't schooled. We learned everything on the gig. And I was playing as hard and as fast as I could. But what we were doing was so unique and different that it started to catch on. I've always said that Santana played *Santana* music. It wasn't Latin rock, or jazz/rock—*we* put it all together. That combination of minor modes and rhythms still drives people wild. It's likeable. And I still love playing that music today.

When did you leave the band?

I stayed in Santana until 1972. We just had differences, both musical and personal ones. Maybe it was "too much, too soon." I always put it this way: We played with passion, and we broke up with passion. There were differences with regards to the musical direction of the band. I liked the exploration on the album *Caravanserai*, but I didn't want to make it a mainstay of what we did. I also didn't want to lose the relationship we had developed with our audience. I couldn't see throwing that away for this new musical direction. So like most bands, we fell apart. But when I look at it now, I realize that if we hadn't been the people we were at that time, that music probably would never have happened. So it's okay.

What happened after you left Santana?

I started a restaurant with my Dad in Seattle, Washington. You could say I went from the pan into the fire! [*Laughs*.] But I was really ready to take a break. They were going to build up Pioneer Square, the area where our restaurant Merchants Café was. But it never really happened. I think we were just ahead of our time. It was a beautiful place and the food was great, but it ultimately failed after about a year and a half. My God, that is one tough business.

Not long after we closed the restaurant, I got a call from [manager] Herbie Herbert and [guitarist] Neal Schon, telling me that they were starting a band and they wanted me to be a part of it. I wasn't doing anything at the time, so I moved back to the Bay Area and joined up with Neal, bassist Ross Valory, and the drummer, Prairie Prince. That was the beginning of the band Journey. At first, the band really leaned towards rock fusion with vocals. We were playing music that, just like Santana, was based mainly on building solos up until they screamed. Neal was great at that.

What kind of keyboard rig were you using in Journey back then?

I started with a Yamaha CP-70 electric grand piano, a Minimoog, and the chopped B-3 organ. Later, I got one of the first Sequential Circuits Prophet-5 synthesizers, which was great because you could make your own presets. That meant I could jump from one song to the next and have my sounds stored and ready to go. I got into playing those modern instruments because that's what the gig called for. I wasn't playing as much organ in

ROLIE'S RIG WITH RINGO

When touring with legendary Beatles drummer Ringo Starr, Gregg Rolie returns to the instrument where it all began, the venerable Hammond B-3.

"With Ringo, we usually rent an organ at the beginning of the tour, and we keep it until the end," he says. "This time out, I'm playing a standard B-3 through a Leslie 122, but on the next tour with him, I'll be using the New Portable B-3 and a Leslie from Hammond. I'm *very* impressed with the new technology." As to some of his favorite settings, "It varies, but usually I'm playing with the first four or five drawbars out," he explains. "Sometimes I go for a rounder, more churchy sound with just the first and third out, plus maybe the sixth drawbar and no percussion. I usually have chorus set on either C1 or C3.

"I'm also using a Yamaha Motif XF8 synthesizer, which I *really* like. It has some terrific sounds in it, unlike some other keyboards that sound a little too jazzy for my taste. To me, the Motif has more meat on its bones. It's also a great writing tool—there's a Hammond sound in it that's so good, I have one set up in my studio at home and I sometimes use it instead of a real organ."

Journey as time went on, although it's all over the earlier records and on songs like "Lights."

What led to you eventually leaving Journey?

I was just through. Between Santana and Journey, I'd built two bands and spent 14 years of my life living out of a suitcase. Santana was a phenomenon, but Journey was *work*. It was a great band and a totally different one than Santana, and I'm proud to have reached two different pinnacles in my musical career. But I wanted to change my life. I wanted to start a family, and my heart just wasn't in it anymore. I realized that it wasn't fair to everyone else in the band if I just took up space, so I left in December of 1980. Years later, I wrote a song about leaving Journey that had the lyric, "Would you mind if I went home?" I sent it to Herbie Herbert and he called me and said, "*I* mind it!" He's still pissed off about me leaving the band to this day.

Did you have any regrets about leaving a band that was on its way to worldwide acclaim?

None whatsoever. I was over it. I remember everyone telling me, "You're gonna miss this," and I would reply, "No, I'm *really* not!" Gypsy life is great when you're a gypsy and you love it. But when you don't want to do it anymore, it's not so great. So I just stopped and for two years I didn't play music. I played golf! Five years later I had my first child and I was happy to be "Mr. Mom." I changed my life completely.

How did you find your way back into music?

My piano was sitting there in my house and I started thinking, "I should be doing something!" After my son was born in 1985, I recorded my first solo album, which was one hell of an endeavor. Up until that point I had primarily been in *bands*, where each member had their own designated job. But when you're the solo artist, all the decisions are on you and it can be challenging. When I started work on my second solo album *Gringo*, which was released in 1988, I finally got to the point where the record company was no longer dictating to me what I could or couldn't do. I found my voice on that album, teaming up with a songwriter named Bob Marlette who played synth even better than I did. Carlos and Neal played on the project too, and David Kershenbaum produced it. I'm proud of that album. It has some really cool material on it.

Were you recording at home?

We worked in an outside studio. I had a little setup at home where I could get basic demos of songs together, but I didn't get into doing drum sequencing and other kinds of production things until after that second album. Truth be told, I really didn't enjoy that part of the record-making process. I just wanted to go in there and play. I still feel like that today. What really gets me going is collaborating with other people. When I do that, I get inspired to play things I couldn't possibly come up with out of my own head. I think the world is better when people listen to and play off of each other.

Greg Phillinganes once told us, "Playing keyboards is like making love. It's best enjoyed in the company of others!"

That is *very* good! And he's right. I think that sentiment is ultimately what led me start playing in bands again, like the Storm in 1991, which I started with the singer and songwriter Kevin Chalfant, and later the Gregg Rolie Band, which I still record and tour with today.

You've anchored the keyboard chair in legendary Beatles drummer Ringo Starr's band since 2012. How did the opportunity to play with one of your musical heroes come about?

Actually, I got the call to play with Ringo a couple of times over the years, but I turned it down simply because I didn't want to do that to leave the guys in my band hanging. I've never been that way. But when my band bookings started slowing down and Ringo's people called me again, I accepted the invitation. Longtime Billy Joel saxophonist Mark Rivera, who was also this band's saxophonist and musical director, suggested me to Ringo, and after listening to some of my songs, they hired me. It's funny because when I finally *did* say yes, I got to play with an absolutely phenomenal band that includes Todd Rundgren and Toto's Steve Lukather on guitar, Richard Page from Mr. Mister on bass, Gregg Bissonette on drums, and Mark Rivera on saxes. I love playing with Ringo and the All-Starrs.

When I was hired to play with Ringo, I told the band, "You hired the Muddy Waters of the keyboards!" What I meant was, Muddy Waters didn't play the music of the Mahavishnu Orchestra. He played Muddy Waters music! I'm a B-3 player, and I know what I'm doing on that instrument. In fact, Mark Rivera said to me, "You're definitely an organ player, because I see you pulling drawbars out constantly!" And for the songs that require other kinds of keyboard parts, I'll do my best. But I'm a slow learner because I haven't played other people's music since my days in William Penn and his Pals. And unless I find a way to make someone else's song my own, like "Black Magic Woman" by Peter Green or "Oye Como Va" by Tito Puente, it's hard for me to learn a song cold.

So when you got the set list for Ringo's show, how did you go about learning the songs? Did you chart them out?

I can't read or write music. I play everything by ear. But I think that has served me well. I have always thought that if you can't remember a song without sheet music, you probably shouldn't play it! For the gig with Ringo, I was lucky to get the songs pretty far in advance, so I felt comfortable with them by the time we went into rehearsals. And I found my own way around the music. For example, I was never going to be able to re-create David Paich's two-handed keyboard parts on songs like "Africa" by Toto. He's an incredible player. So I told Mark Rivera, "I've got the *top* hand down!" And he replied, "Ok. I'll play the bottom hand part on the saxophone." It was Steve Lukather that finally said, "We shouldn't be trying to cop these parts exactly. We should be playing the songs like we're a band." So that's what we do. We play the songs our own way. It's quite an eclectic group of musicians, but it works. I asked Joe Walsh when we played together for Ringo's birthday in 2012, "Who would put a band together like this?" And Joe replied, "Ringo would!"

Besides touring with Ringo Starr, what's next for you?

I'm finishing a solo album, and then the original Santana lineup is reuniting for a new album and tour, probably in the next year. We got back together to see if the magic was still there, and it was. The new music has the same attitude as it used to have, but with more knowledge. How can that be bad?

If there's a secret to your nearly five decades of continued success, what do you think it is?

I've said yes to the right things and no to the right things. But ultimately for me, it's always been about following my heart. ♫

Gregg Rolie with Ringo Starr: "Black Magic Woman"

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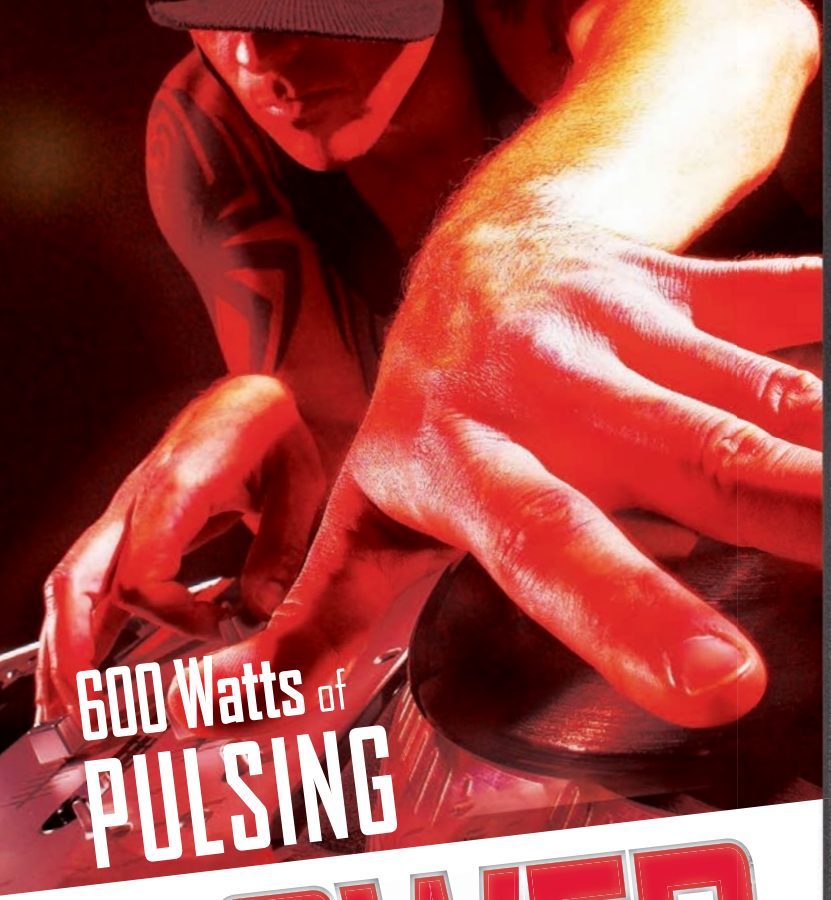

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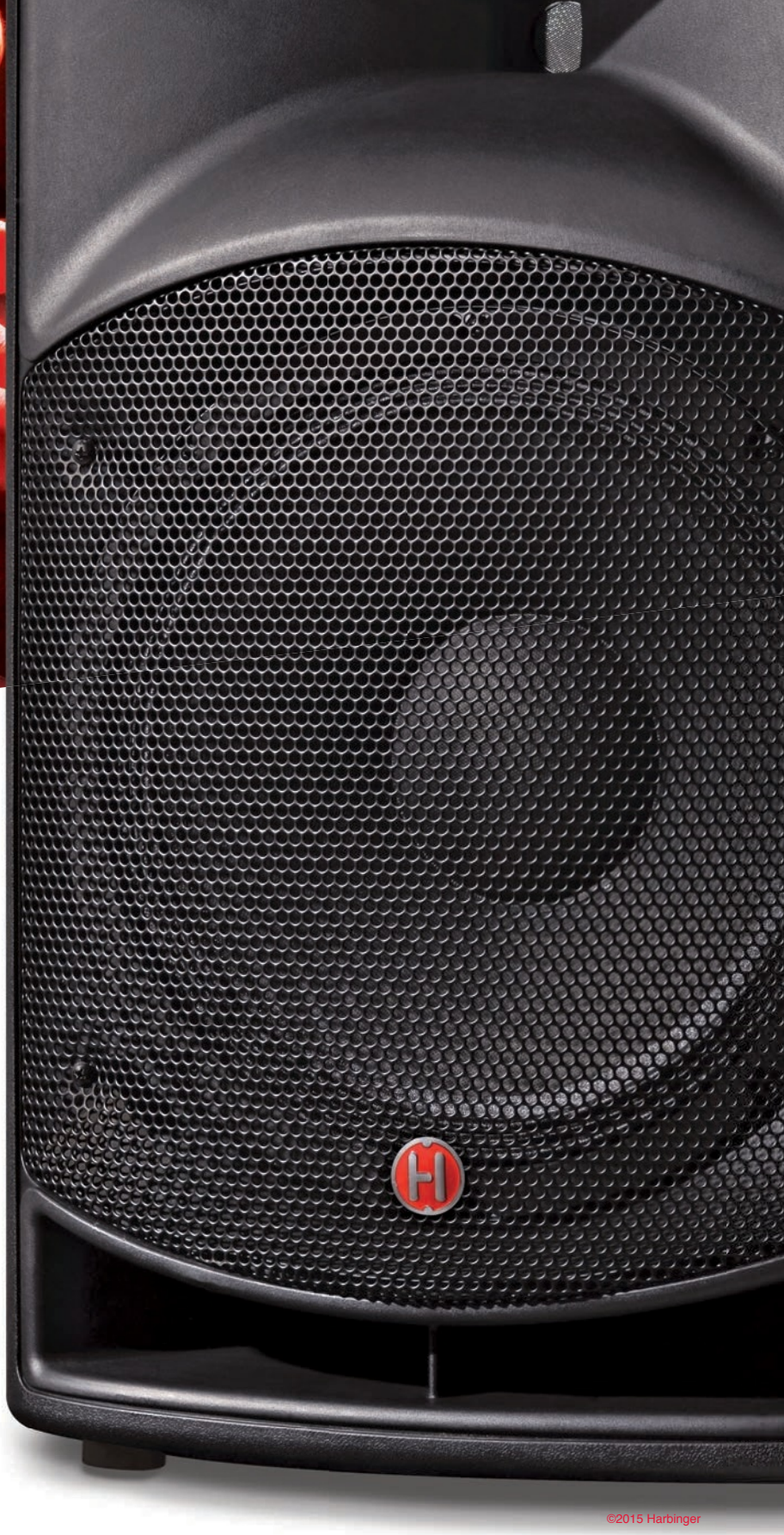

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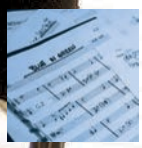

BOWIE'S PIANIST CREATES MUSIC FOR HEALING

BY ROBBIE GENNET

MIKE GARSON HAS RISEN TO A RAREFIED LEVEL OF acclaim in his storied career, from his stunning piano solo on David Bowie's "Aladdin Sane," through work with artists from Stan Getz and Stanley Clarke to Billy Corgan and Trent Reznor (most recently on the film *Gone Girl*), through his "Now Music" brand of spontaneously improvised compositions captured via the real-time recording capabilities of a Yamaha Disklavier grand piano. Recently, Garson teamed up with brain surgeon Christopher Duma to create a "Symphonic Healing Suite" of music therapy for patients with brain cancer, Alzheimer's disease, and other neurological ailments. It premiered last year at Orange County's Segerstrom Concert hall, where Garson led an orchestra of 55 players along with a choir of 44 children. We caught up with him after the show to learn his latest thoughts on the healing power of music, education, improvisation, and more.

How did you arrange this night of music?

The first half was jazz so I made it a little more complicated and difficult. Then when I went into the Suite, they were the survey pieces from the patients. Some of the harder classical stuff that was pretty wild that I still love, they vetoed. So, fair enough, it turned out to be a little more melodic and easier to absorb. But it had a great emotional effect.

Healing, in other words.

Always. I handpicked all the musicians because I wanted my favorite jazz guys there. I wanted Bob Sheppard, Joe LaBarbera, Larry Cruz, Derek Oles. I wanted Drew Tretick on violin for the tango, and I wanted The Section, which is a string quartet, to do some of the crazy stuff with Paganini. I wanted Jessica Tivens, the opera singer, there. I brought her in from New York. I used to manage her when she was 14, and she has a great voice. I wanted Nita Whitaker. She did the demos for Whitney Houston in the film *The Bodyguard*, and had been David Foster's demo singer for 20 years. I wanted those freakishly talented flute and clarinet kids that are 19 and 23. [*Sang Yoon Kim on clarinet and Riria Niimura on flute.* —Ed.]

That one duet they did was amazing. That was a highlight.

Just beyond belief, right? I wrote that for them. This was my life's work culminating in one day. And I think now, I can see myself writing my next work: I have it in my mind to write music for children with autism.

To what extent was the Healing Suite informed by the avant-garde and jazz composing you're known for?

I'm still playing my jazz gigs. I'm still writing the wackiest modern classical music. It all comes from what I call my "Now" Music. It's how I create—every note that you heard from that orchestra was an improvisation of mine at one time. The night of the show, I made *new* Now Music; I was improvising 70 percent of everything you heard. The musicians were playing scripted parts except for [behind] my piano solos, which I improvised. That piece "More Love Now," with just guitar and piano—very simple.

As a father, I was transfixed by your piece called "The Lullaby."

You can relate. The place was like Noah's Ark; it was flooded. I have never seen so many tears. Joe LaBarbera—his tears were falling on his snare drum.

He played with Bill Evans, didn't he?

Yes, with Bill Evans—and with Tony Bennett for ten years. You talk to any jazz piano player—I'm not talking fusion—anyone who you talk to who is a great jazz pianist, he'll say, "I want to play with Joe." Great feel, great touch, great time, great reader.

Is it true that you studied with Bill Evans?

I took one six-hour lesson with him. I just went up to him and I said, "Bill, I come here all the time. Can you teach me something?" He said, "Come on up." With Herbie Hancock, I had three lessons.

What did Bill show you that stuck with you?

Voicings on songs like "What Is This Thing Called Love?" And a couple of altered changes that you see in some of the books that he's done. It was more like what rubs off that what sticks. Like when people study with me, if you ask them what they studied, most will say, "I don't know. I don't remember, but I liked being in the space." It's the old "guru" way of teaching where it rubs off on the student. It was just being with him, which grew my spirit.

How about Herbie Hancock?

Herbie taught me the diminished scale. I mentioned to it two years ago and he had no recollection. I was playing with Bob Moses and in the Catskills with Dave Liebman when I was 15 or 16. Herbie actually came up and sat in because he was friends with Bob Moses and they all lived in the same building—Roland Kirk, Herbie, Moses. He came out and played the old standard "Don't Blame Me."

I was jamming with Liebman and Bob Moses,

What it all boils down to is, what's your purpose? What's your intention?

and then Herbie sat in and I just about died. He played with the most intricate, complex, subtle, beautiful touch, and I was really hooked on that music. So he gave me three lessons. Lennie Tristano was my taskmaster for years; he taught me 3,000 left-hand voicings. In a sense, it was all "healing," you see. Now with the Healing Suite, I have an umbrella to put it all under. But is it spiritual healing—mental, physical, and creative healing.

Is all music healing? In the sense that the waves of energy affect people?

I wrote to Larry Cruz after the show night because he was thanking me for the performance, and I said, "You realize any one of the notes that you played is going out into the universe forever and will never stop moving, and will be healing somebody somewhere." So I'm very aware of that.

But I'll tell you something else. You can use musical energy to hurt people, too. So you have to do everything with a certain care, love, and the most important thing: the *intent* of the originator of the music, of the songwriter or composer. You could have a lot of phenomenal notes with a ton of energy behind them, and it does the opposite of healing because the person doing it is being a f***ing egomaniac. The music doesn't heal; it just tells the audience member, "Oh, this is about me being me."

What it all boils down to is, what's your purpose? What's your intention? I didn't always think about that consciously enough. It's what's in your heart and how you want to convey that. It's beyond *C* major, *F*, *D* minor—everything we know. I had a friend who passed away a few years ago, a great piano player. He said to me for 40 years, "It's all in the one note." When he first started saying it, I didn't have a clue what he meant. Ten years later I had a little clue. The other night, there were two tunes of mine called "Gratitude" and "Grace." I didn't even play the piano. They just played what I wrote, and the pieces were almost one note because they were so simple. So I think I finally understand what he meant—40 years later.

Is the piano is the best instrument to teach and learn on?

I have a theory that's crazy but true to me. If you look at the past 500 years, who were the best composers? They were pianists. They weren't oboe and flute players and trumpet players. Why? Because piano players develop both the hemisphere of the brain and coordination between them from a very young age, so we open up to all kinds of stuff.

Aside from the pipe organ with its potentially thousands of pipes—and musicians who are phenomenal on pipe organ, they're a whole other world—the piano is the daddy of all instruments. I've written some organ music and I opened the show with somebody playing the organ. It was somewhat like *Phantom of the Opera* on steroids, but it had a vibe to capture. It was just a way to get everyone centered after the video introduction and I did the scoring on the video with just a synth because I wanted the sound to be totally different from what you hear for the rest of the night. But I made sure it ended on the *D* so Lori Loftus could blast into the *D* [on the pipe organ], and when her *D* was fading out I gave a count, and then the fanfare started with the snares and then the piece just kept building and building.

Beyond the doctors who were in attendance, was the rest of the audience aware that the music they were experiencing was meant for healing?

It takes someone who gets the healing in the bigger sense—spiritual, mental, and physical. Actually, I see it more as preventive medicine than I do *medicine*, because if you get a human being feeling pretty good, his or her cells are going to be better. After all, "dis-ease" is the opposite of ease. It's possible for it to travel into the body through the spiritual plane to the mental plane and then to the physical plane.

When you work with music students, what's the biggest challenge you've faced in teaching?

Having taught over 10,000 students, I've found that their biggest problem is usually that they're playing too fast—and above their level of

what they should be doing. So they can't have a "win" with what they're doing. They can't feel like they've accomplished anything.

The two things that kill a piano student are, number one, that speed issue, and number two, you're giving them stupid s*** when they should be playing something they like with triads and writing a song. Occasionally, you'll get things like, they didn't understand the concept of what the treble or the bass clef means, or what *andante* means, and so on. So sometimes you have symbols and words that might confuse them. So that's simple enough. Another thing is they've been put down so badly by their earlier teachers and yelled at so much that it takes the life out of them. So they've been repressed and invalidated, and that makes them basket cases. But the truth of the matter is, art is a very sensitive and close thing to a person. So if you mess with that and the student is vulnerable, in the learning years, you'll destroy their passion for it. So out of the 10,000, I basically had 8,000 to 9,000 basket cases. About half of those, I was able to rehabilitate. The rest just had too much mental and spiritual pain associated with trying to learn music.

There's a fine line because you want to have high expectations for a student to succeed, but you don't want to kill their joy.

You can teach people through force and they might get good. But you take all the feel out of the music. The best way to do it is with love, encouragement, inspiration, and proper gradations like I was describing—giving them what they really love, making sure they understand the concepts they're learning, and [avoiding] that kind of suppression where they'd been put down and made less of.

That, and making sure they've found their passion. When I teach, my goal isn't necesarily to make a better piano player; it's to give the student whatever they truly wanted to receive. If they have an epiphany and they decide they want to be a plumber or a doctor, I did my job. Who am I to say they must learn jazz or classical or rock or fusion or David Bowie? That's arrogant. In the old days, certainly, I taught all the chords and all the scales and the playing, and I still do if someone asks, but the bottom line is that I want them to find what they love. And also to show that I trust them. Then they'll deliver everything they can. For me, when someone trusts me, I'll give them everything. It doesn't matter if they're film director, a bandleader, or anything else. If they don't trust me, to tell you the truth I start to doubt myself—and I'm not exactly at zero as a musician!

You're known for beginning a lot of your writing by improvising. Is that how this suite came together?

All the pieces in the Healing Suite came out as improvisations. This work, if you were to just take the 12 pieces and time how long it took to write each one, that would come out to about two hours. The tango was written in three minutes. The performance took two minutes and 47 seconds. So I slowed it down 13 seconds as I was composing it. There wasn't a wrong chord in it. But it was a request from the Parkinson's patients.

A lot of people who study the piano don't know how to improvise. They want to learn how to develop their own voice, but they say, "I don't know what to play." Why is that?

The reason the people can't get it out is due to blockage. They're *clogged*. They're clogged with chatter of the monkey mind and what everybody else has said to them for the last however many years. So once you listen to those negative external voices, you draw the conclusion that you "can't do it," and it's over. You just have to point out that these are false beliefs.

As an artist, what has helped you move past others' opinions—beyond the "monkey chatter"?

I'd be full of s*** to say I'm not still affected by what other people think. I'll get wounded, because to do music you have to *not filter*. You have to be vulnerable and let all kinds of energy in. So if someone's throwing a curve at you, you can become unsure of what you're doing. You ask yourself, is this the best choice of chord? Is this the best rhythm? And you examine it and you see if there's any truth there. Sometimes there's one-hundredth of a truth that helps you. Or sometimes it makes you realize it doesn't matter what anybody thinks. But as a musician, you don't want to close down and have the attitude of "F*** 'em. I'm right, they're wrong." You don't want to rest on your ego.

For example, we're not talking about my past much in this interview. I have great stories from the past, but I'm not living there. I still love playing, I'm still going out and doing all kinds of gigs, and I feel that this is more important than talking about phase-shifting or the modulation on the Moog or the *C*7 inversion with the third in the bass. I did that in the '60s, and enough people know what that is. Likewise for talking about how you do the fusion thing or how you do classical. There are so many great musicians that cover that. My job is always to be avant-garde, in the literal sense of always looking towards the future. I'm always trying to be ahead of the times, but not to the extent that my music is inaccessible. You think about "Aladdin Sane" in 1973—then, that was pretty ahead of its time for rock 'n' roll.

The first time I heard that, I couldn't wrap my brain around it.

Of course not. David Bowie's son said he had nightmares about it for ten years! [*Laughs*.] But I didn't think about that solo for 25 years. It wasn't until Internet use became widespread. Now, every day I get an email connected with only that song. I've played on thousands of albums, 20 or 30 of them my own, and written over 5,000 pieces. But people always want to know about "Aladdin Sane." I've done maybe 500 interviews for books connected with it. There have been documentaries about it. Every day there's something on Facebook. The other day something from Russia came in, from a player who showed me how he could play like me on "Space Oddity." It was so out, it was unbelievable. It was almost *too* out for me! But I said, "Keep it up."

At the time that you played that solo, what did you think?

It was one take, and I really didn't think s***. Originally, I made 33 bucks for it. The whole album, I made 150 bucks because I was getting the union pay in London of 18 pounds for every three hours. I'm very fast in the studio, so I'm still waiting for my bonus! [*Laughs*.] But I've gotten a lot of work from it. Nine Inch Nails called me because of it. Gwen Stefani called because of it. Billy Corgan called because of it. It's been a great calling card.

You never know which [song] is going to be "the one." I give a lot of credit to David Bowie. First I played a blues solo on the *A* and *G* chord, and he said it was just too plain and simple, that anyone can do that. Then I played a Latin solo because alternating between *A* and *G* makes for good Latin montunos. Again, "Anyone can do that." He told me, "You're on the *avant-garde* scene with your crazy s*** with elbows and hands." I said, "Well, that's why I'm not working Saturday night." He said, "Don't worry about that. I'll frame it and the bass drum will be blasting. It will be no problem." I said, "You're sure?" He said, "Absolutely." So they pushed the Record button at Trident Studio and I played it on this Bechstein grand that the Beatles used—in one shot. Then? "See you, I'm going home to my wife." The rest is history. Did I know it would be at the time? No. Did the 33 dollars buy us some food for the week? A little bit.

How can musicians stay open to critique without being injured by criticism?

One thing I'd like to see people do when they play is just have a little less ego and a little more compassion—a little more forbearance, a little more love, a little more care, a little more responsibility. You're supposed to pass it on and you're supposed to share. ♫

How Mike Garson uses the Yamaha Disklavier piano.

keyboardmag.com/march2015

CJ VANSTONE

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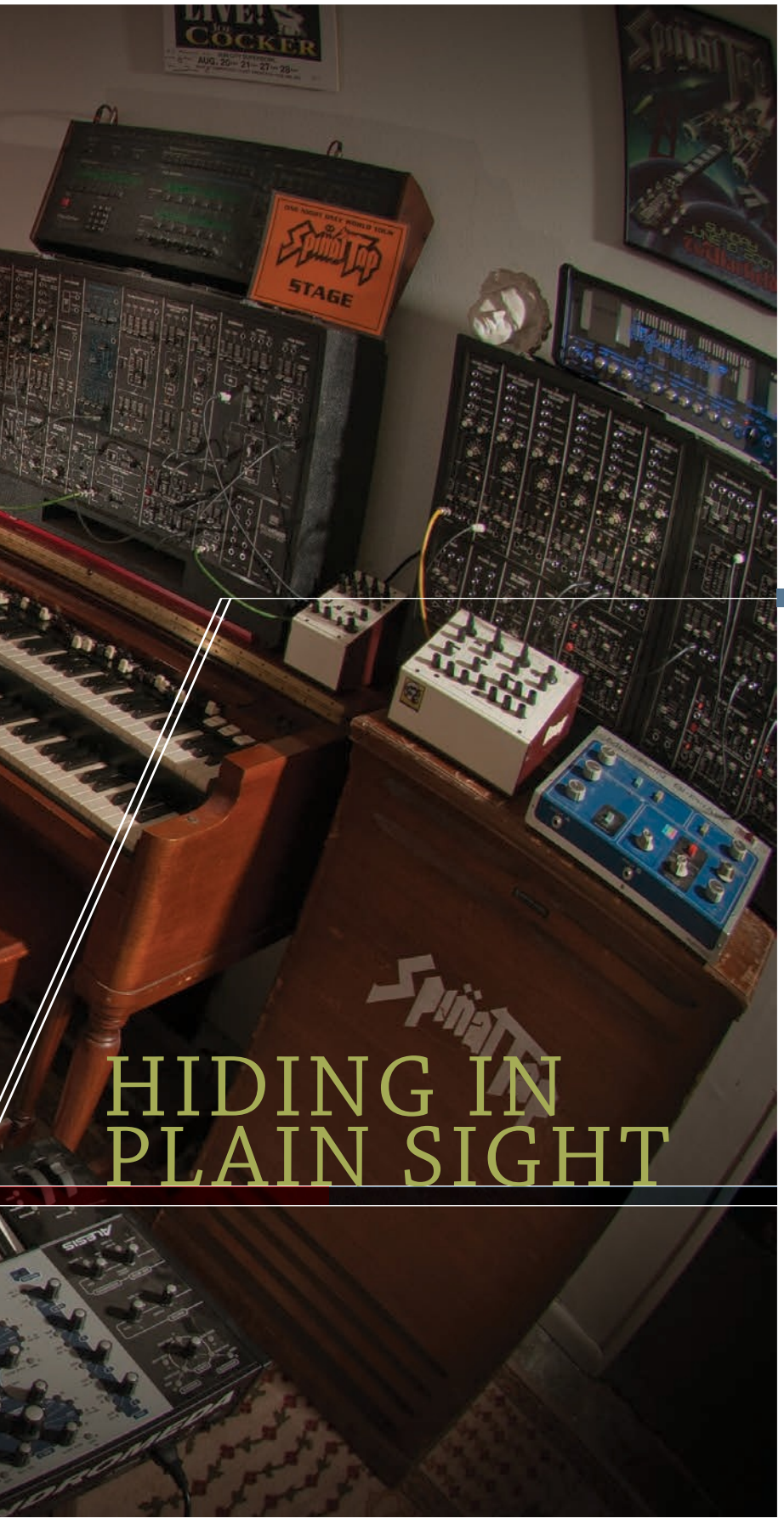

HIDING IN PLAIN SIGHT

BY JERRY KOVARSKY

SOME ARTISTS ARE WELL-KNOWN AND RESPECTED inside the biz, but for various reasons they don't rise to that "name" status that makes reader's polls and garners media attention. In the case of journeyman CJ Vanston, he's more focused on doing the work than promoting himself. And he has certainly been being doing the work! He's done more than 500 recording sessions; toured with Joe Cocker, Tina Turner, and Tears For Fears; served as a writing/production partner for Steve Lukather; scored most of Christopher Guest's movies; produced the new Toto record; and has held down what is possibly the most dangerous keyboard chair in rock 'n' roll for the past 20 years: playing with Spinal Tap! Long admired within the business, Vanston sat down with *Keyboard* for a long overdue discussion about his career, his music, and our favorite subject: gear.

Let's start at the beginning: CJ, the early years.

My dad was a renowned jazz piano player where I grew up [Lansing, Michigan]. He was a very Bill Evans kind of guy: understated, but with chops. There used to be lines around the block to hear his trio. Our apartment was on top of the stage, so I was hearing that trio every night from age of three on.

I studied classical piano from an early age, and got a good background in technique, harmony, and such. I had a scholarship to go to college, but that summer I saw an all-Black horn band that changed

ALEX KLUFT

CJ Vanston in session with Toto (left) and jamming with Keith Emerson.

my life, introducing me to the world of funk. I was playing in my jazz band, and the lead singer came in and was listening to me play. I walked off the stage and he's standing right there and says, "Y'all playing with us now." So I blew off college and got on a school bus with an 11-piece R&B horn band.

What was your rig back then?

Well, this was 1974. I had a Rhodes and a MiniKorg. I took that MiniKorg and put duct tape on the tuning knob, so I could use it like a pitch wheel. All I wanted was a Minimoog. When I graduated high school my dad bought me a Buick Skylark, which I immediately sold for a Minimoog. And then went and got a loan and got a [Yamaha] CP-70 and an Oberheim Four-Voice.

After the band broke up, I ended up spending a year with Elvis imitators. I wasn't that into Elvis, but we had a blast, and that's where I learned how to write horn charts. The next band I joined made a record at Pumpkin Studios [Chicago], which is where Styx recorded. I walked into that studio, and just knew I'd found my home. The engineer on the session—Gary Loizzo, who did all those Styx records—told me, "My god, you're so good at this, you gotta move to Chicago; you'll just take over here." So I moved, he hooked me up, and within a year, I became the first-call guy in Chicago, doing sessions. All from my first recording session!

It was a lot of jingles back then, right?

Six sessions a day, five days a week—just incredible. I was coaxing banjo, harmonica, pedal steel, oboe, out of a Prophet-5 that nobody was really understanding. Over time, I built a huge keyboard rig that included the [Roland] Jupiter 8. I had the first [Yamaha] KX88 in town, rackmount [Akai] S-1000s, all that stuff. It grew to three racks that were six feet tall that I brought to each session. I'm sitting in my studio here; it's 2,000 square feet, and probably 1,000 of it is vintage gear—75 to 85 keyboards.

From that era of gear, what are your favorites?

Really simple: the Oberheim Four-Voice. It has a beautiful, organic sound that has never been superseded. Also, I have two racks of eight [Yamaha] TX816s. Those things, my God, you could shave with them, their transients and the attacks are so fast.

Any other stand-out gear?

The next era of stuff that came in was the Korg Wavestation, the Prophet-VS. These were mini-PPG kind of things, where you could cycle through waveforms. That really interested me; the sound was moving. It sounded more like nature to me than a synthesizer.

You posted something on Facebook recently about a Peter Cetera track, "Have You Ever Been in Love?" and called out the Wavestation specifically.

I listened to that track after all these years, and I got tears in my eyes. Here's how that type of session would go down: We'd listen to the demo in the control room. The drummer writes his chart, the players confirm the chord changes. But I've got to decide what I'm going to do production-wise. So I discuss with the artist or the producer: "I think I'll do a pad in the chorus, and maybe some kind of percussive thing during the verse." [And they'd say,] "Oh, that's great. Do it."

I had my three racks, so I decide to get my TX-816s going in the verse. Now I got this pad I gotta do in the chorus. Well, I hit the Wavestation for the little modulating, high-end wind on top. I would use my Oberheim for the fatness, bring in some of my Waldorf stuff to create a little warbling thing in there. I ended up using six synthesizers, all MIDI'ed together, just for my pad. And that's why, when I listened back to the song, I went, "Listen how rich those sounds are."

By then you'd obviously moved to L.A.

Well, in Chicago, there was this guy named Dick Marx; he was *the* jingle producer: "Double your pleasure, double your fun" for Wrigley's gum. "Two scoops of raisins" for Kellogg's Raisin Bran cereal. He became my mentor and took me under his wing. His son is Richard Marx, who was in L.A., and Dick kept telling him, "You've got to use this C.J. guy on a song." And Richard was like, "One of your jingle guys?" I think he was a little suspicious.

So Richard gave me a cassette of a tune he wrote that he didn't know what to do with. I heard the song, and it blew me away. I knew right away it was a hit. And I decided I had to move to L.A. and make records—enough with these 60-second jingles. It had been a great skill set to learn; I wouldn't trade that experience for anything, but I had to make records.

The demo was for the song, "Right Here Waiting." That whole track is me: there's the Oberheim, the bass is the S-1000. I used the E-mu ProFormance half-rack piano module. Amazingly, my demo ended being used as the track. The record company wanted to do drums and this big production, but Richard was smart enough to say, "No, this is it."

Well, that track had such an effect on radio. It went the other way from everything else. Next thing you know, my phone is ringing off the hook: "Phil Ramone wants you to work on this record," and "Desmond Child wants you to work on this," and Greg Ladanyi, and David Foster, and Humberto Gatica. That record opened up my whole world here. I finally found my home.

How did you get the Spinal Tap gig?

I had done some gigs with Katey Sagal, with Russ Kunkel on drums. One day I got a message on my answering machine: "CJ, man, it's Russell. I got the gig from hell. Give me a call."

And that's one of those moments where you stand over the answering machine going, "Okay, what is this going to be?" So I called him and I said, "It's Michael Jackson?" He goes, "No, it's better than that." I said, "Well, you're touring with James; is it James Taylor?" "No, way better. It's Spinal Tap." It was a one-nighter, playing for Marshall amps at the 1991 NAMM show. That's all they needed me for, and there was hardly any bread.

I hung up that phone and I just said to myself, "There is never going to be another keyboard player in this band. I'm going to take this gig,

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and rip it a new one." I found the samples for all the parts on the record, showed up for rehearsal, we ran the first song, and these guys are looking back like, "Who is this guy?" I had it all nailed, the first time through. And that was that.

I made them sound pretty big; we started doing more and more gigs, and it just turned into a thing. We did a record in '95, *Break Like the Wind,* and went out on a world tour. In the middle of the tour, Chris Guest told me he had a movie he was working on and I said, "Well, I gotta do the music for that." And he said, "I didn't know you did that." I said, "Are you kidding?" Of course, I'd never scored a movie in my life. And that ended up being *Waiting for Guffman*.

Boy, there were some amazing moments. Playing Carnegie Hall with Spinal Tap was one of the most surreal moments of my life. That really is wrong on so many levels.

Onstage with Joe Cocker

You've worked a lot with Steve Lukather, which led you to produce Toto, one of your seminal influence bands. Talk about life coming full circle.

Funny how that happens, isn't it? I would have cut my toes off when I was 19 to work with these guys. You work your ass off for 35 years, and you end up getting what you want.

I met Luke on a Richard Marx session, and we ended up doing hundreds of sessions over the next 25 years. So we became friends as session players, and then he called me in to work on some of his solo stuff. We wrote some tunes together, I played my parts, and then he went off to finish the record with some engineer. He played me some mixes, and they just sounded awful. [I said], "Steve, these don't sound like the record we made," and I played him the original demos. He agreed and said, "I want you to be my producer and mix the record." So I did, and the record [*Lukather*] was well-received by the fans, and got some critical acclaim. We did the whole next record [*Transition*] together; I'm so proud of that project, it was amazing.

The band heard that record and decided I should be the guy to record and mix their live DVD [*35th Anniversary Tour - Live in Poland*], which like the rest of my career, I claimed to know everything about, yet knew nothing. I worked my ass off on it, and it came out amazing. I think I had hung around with them enough for them to know, "This guy's invested in us, and knows us." So they hired me to produce this new record. And I gotta tell you, it's their *Sgt. Pepper's*. These guys are really at a striking place in their lives right now; it's like a fine wine. I think this record's gonna really blow a lot of people away. Name better musicians on planet Earth. There is no such thing.

You've moved pretty far into the box gear-wise. What do you use?

I'm a true-blue Logic guy and I have been for over ten years. And where it's at now with Logic X is just incredible—just the basic stuff that's included. I use Main Stage as my live rig. Just my laptop and a [Yamaha] S-90 or Motif: two outputs, have a nice day. If anything happened and I had to use another computer, I could easily switch the system all over.

In the studio I'm still using a MOTU 2408. I've got all Apogee in and out, Apogee Big Ben for my clock. I use a PreSonus monitor station, for switching. I'm loving my JBL 6300 series speakers. I have a beautiful control room; it is a real control room built by a real studio builder, not a drywall square that people call a studio. So what you hear here is what you're *going* to hear. Everybody just comes to me with their stems. And I've got all my stuff sitting here, so yeah, I'll pull my Wurly out, or I'll pull down my Four Voice, or whatever. I've got the new Roland Jupiter 80; I love that. I'm really loving some of the sounds on the new Casio PX-5S.

I'm a huge [Spectrasonics] Omnisphere fan. I use [Synthogy] Ivory a lot. I just like the box because, especially working on a record like this, we've got 11 songs, and Lukather will walk in [and say], "Hey, I want to put a part on the end of blah-blah-blah."

Any other go-to processing plug-ins?

I hate to give this one away, because it is so incredible—EZmix, by ToonTrack. It's so easy to use, and is one of the most stunning plug-ins I've ever used. It provides all your chorus, flange, delay, tape simulator, multiband compressor, compressor, reverb, plate reverb, spring reverb. But the interface opens up, and it's only two knobs and a bunch of presets. They farmed the presets out to all these incredible engineers like Chuck Ainlay, who I highly respect.

Let's say you have a snare drum, and it's the top mic. You type in "snare top," and here's a list of 75 presets. Now you can bang through these and find something that's kind of close. And it creates a jumping-off point. What it's really great for is finding a distinctive vocal sound.

I've got pretty much everything Universal Audio makes. Melodyne is a huge tool in the studio, and not in the sense most people think about. I don't go through and tune vocal tracks front to back, the way so many people do. Melodyne lets me save a vocal track that has more emotion, and only fix a few small spots. I'll also use it to mute out the leakage in tom-tom tracks. I use it as my de-esser, because the esses show up as an individual blob that I can reduce the gain on.

Is your go-to Rhodes sound in the studio in the box?

It's the Logic EVP88, yeah. I've got my tine settings, and a whole channel strip [compressor and EQ settings]. Unless I'm going for a more DX7 thing, then I use [Native Instruments] FM8.

Go-to Wurlitzer?

I've been using (AAS) Lounge Lizard, but I tend to pull my Wurly out. That's a tough one. I'll tell you, the other good one is the Casio PX-5S. I dig having the slider for the amount of distortion. It's between the Casio and the Lounge Lizard.

For film scoring and other productions, what do you use for strings?

Well, strings are an interesting thing. I've got a bunch of different libraries; I've got the 8Dio stuff, the Vienna stuff. For sustained strings, it's really hard to tell the difference between these different titles to me. And one of the best patches existing is the Hollywood Strings in Omnisphere; that's a beautiful sound. But the best one I have is something I created years ago on my S-1000, using a mixture of Sample Cell and a live date I did; those are my own personal samples. Now, that's for just sustained pad strings. When you get into key switching and articulations, that's when I go over to the VSL or the 8Dio libraries.

Do you practice?

Every single night of my life. The Bill Evans fake book, the Real Book, classical stuff. I never really practiced my scales after I was 15. But to this day, I always end my day working on whatever book I've got going. I did a lot of woodshedding to keep my chops up, and I still try to.

It's a big, wide swath trying to keep current on synth sounds, and owning the latest synths. My God, that's enough responsibility. But also, to have enough of a foot in the past to know, when they ask for some Meade Lux Lewis, or Billy Preston, or whatever. You gotta know what that is. ♫

Take a video tour of CJ Vanston's studio.

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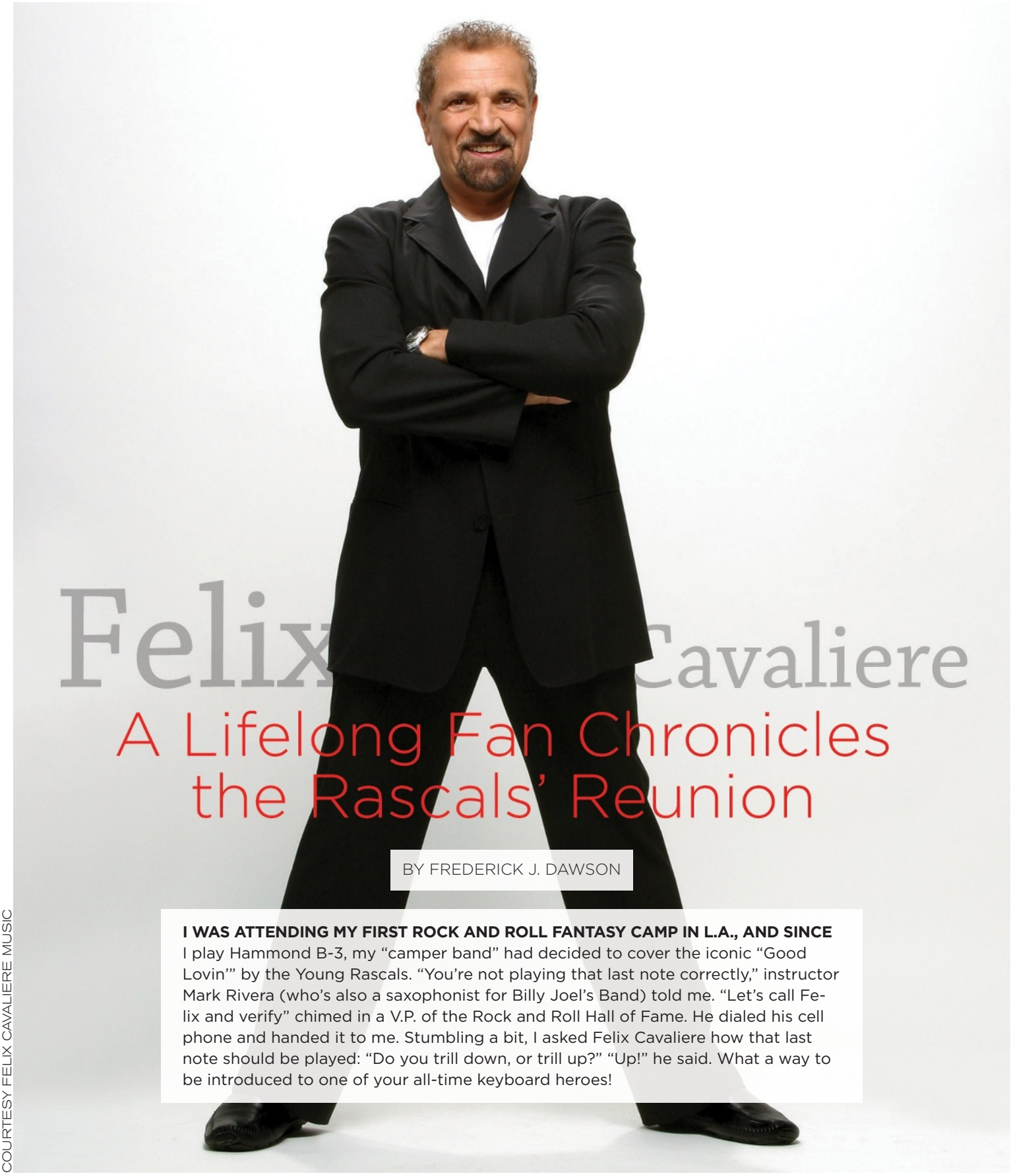

Felix Cavaliere

A Lifelong Fan Chronicles the Rascals' Reunion

BY FREDERICK J. DAWSON

I WAS ATTENDING MY FIRST ROCK AND ROLL FANTASY CAMP IN L.A., AND SINCE I play Hammond B-3, my "camper band" had decided to cover the iconic "Good Lovin'" by the Young Rascals. "You're not playing that last note correctly," instructor Mark Rivera (who's also a saxophonist for Billy Joel's Band) told me. "Let's call Felix and verify" chimed in a V.P. of the Rock and Roll Hall of Fame. He dialed his cell phone and handed it to me. Stumbling a bit, I asked Felix Cavaliere how that last note should be played: "Do you trill down, or trill up?" "Up!" he said. What a way to be introduced to one of your all-time keyboard heroes!

COURTESY FELIX CAVALIERE MUSIC

Cavaliere was the great Hammond B-3 organist, songwriter, and co-lead singer for the Young Rascals. He was one of the architects of smash hits that are still radio staples to this day: "How Can I Be Sure," "People Got To Be Free," and "Groovin," just to name a few. The Rascals' sound made them fan favorites for decades, and could be seen as a forbear of the "blue-eyed soul" of bands such as Hall and Oates. In 1997, they were inducted into the Rock and Roll Hall of Fame.

For this interview (arranged with the help of former Grand Funk Railroad member Mark Farner), Cavaliere and I agreed to meet at a Nashville coffee shop, and then drive to his home in Brentwood, Tennessee. After an espresso, I stuck to his bumper in my rented airport Chevy as he wheeled his black BMW in the direction of his residence. Once inside, I was soon welcomed into Cavaliere's voluminous music room, where I was surprised to find no Hammond B-3 or Leslie. Instead, there were racks, amps, mixers, computers, and keyboards. Cavaliere says that his favorite instrument these days is his Korg Kronos workstation. Next to that was his Yamaha Motif XS8. "While the Hammond was the original synth in its day, it can't compete with the versatility and modern sounds of these new keyboards," Cavaliere says.

His mammoth recent project was a 2013 reunion with the other Rascals (singer Eddie Brigati, drummer Dino Danelli, and guitarist Gene Cornish), in a multimedia show that celebrated the band's music and times. *Once Upon a Dream*, directed, written, and produced by E Street Band member Steven Van Zandt, played on Broadway before embarking on a national tour. More recently, he released a Christmas album in November 2014, and you can keep up with him at felixcavalieremusic.com.

How did the reunion happen?

Stevie called me one day early in the process, saying he had a surprise that he must show me, and to please come over now. When I got to the studio, Stevie played [Rascals lead singer] Eddie Brigati's cameo video for me. In it, Eddie was sharing his feelings about how the band broke up and admitted that he'd made mistakes and felt very bad. He attributed much of the Rascals' success to me. He apologized to me on camera. It brought me to tears! Stevie had each of the band members do their own videos, and we've now included them in the show as well.

What actually happened in 1972 to cause the band to break up?

Egos! We'd get into arguments about petty stuff like who had more camera time during a TV show—like anyone in the band had that kind of control! Also, spouses and relatives—they needed to stay out of the band's business. Then, there was work. I'd work until 3 A.M. on songs and arrangements, and the others would punch out in the afternoon and go do whatever. I finally had to say that I needed more money for doing more work and writing all the songs. I particularly didn't feel that I was getting the respect for leading the group in so many important areas, especially to Atlantic Records so that I could produce our own records.

What were some of the bumps on the road to a successful reunion?

The music came back easily. The challenge that we have is that I'm the only one who really reads music, so Stevie had to come up with a way to make the performance work—to coordinate and integrate all the facets of the stage show. Additionally, we added a bass player, a keyboardist, and three backup singers

For initial funding, Steven went to the fans on Kickstarter, whereby anyone could contribute to the effort. With various amounts, the investor-fan would receive different levels of gifts. The largest investment, $5,000, would get an investor a meet-and-greet, great concert seats, and dinner with the band and Steven after the concert, in addition to all the other goodies offered at less expensive levels.

Steven is an incredibly gifted guy in so many ways. He was able to counsel each of the guys and convinced them that we could work together again. After four court cases, huge attorneys' fees, and a lot of hurt feelings all around, he was able to get everyone back on the same page. He pretty much produced the show, with Marc Brickman doing the intricate lighting and projection. Steven put much of his own money into it, too.

How did you all put the musical production together?

We rehearsed in the beginning at Stevie's studio and others. Later we took everything to Port Chester, New York, for final rehearsals. Stevie chose and rearranged our songs in some cases, added a state-of-the-art lighting system that included some effects from the '60s as well as the lasers of today. Computers were needed to make it all run smoothly. During the show, there are places where the music is paused and each of the band members has his own in-your-face, bigger-than-life cameo video, shown on a 50-by-25-foot screen. The cameos allow each member of the Rascals to express his ideas as well as past opinions and stories. There were even look-alike "younger rascals" who played us in some scenes on video. We each have our own teleprompter with in-ear monitors to follow the detailed script, inserts, songs, and cameos. Stevie promised to make it easy for everyone involved and he's done exactly that.

Your fans recognize you for your Hammond B-3 playing, but you rely more on other keyboards now. Why is that?

Because the new keyboards can drive their sound right through the music and compete well with guitars, I like to play more of them than the B-3. Stevie gets concerned when I don't play enough B-3 in the show. The B-3 just doesn't cut through, even though I'll pull all the drawbars out to get the volume I think I need. The new keyboards allow me to layer subtle mixes of strings and the like with fillers for a larger sound. I can't help myself sometimes—they're just so great!

While I had a great time playing on Broadway, it was a heck of a lot of work playing all those shows back to back. It's a good thing I'm in pretty good shape! ♫

Felix Cavaliere's home music room includes a Korg Kronos X, Yamaha Motif XS8 (right), and Akai MPK49 controller (rear) connected to a Mac Pro running Logic.

SIMON ALLEN

Dan Goldman

BRING ON THE FUNK!

BY JON REGEN

I first heard about the British keyboardist and producer **Dan Goldman** (aka JD73) when I stumbled onto his YouTube demo of the Nord Electro 3 in 2009. I thought to myself, "Who is this guy who funks Clavinet riffs like Stevie Wonder and rips piano parts like Kenny Kirkland?" I soon found out that Dan was one of the most sought-after keyboardists in the U.K., playing with the likes of Morcheeba, Bebel Gilberto, and countless others. Find out more at jd73.co.uk.

HOMETOWN: Leeds, U.K.

MUSICAL TRAINING: I started my piano studies at the age of five. In high school, I played keyboards and bass in bands, and made my first beats and songs using my Yamaha SY55's sequencer. At age 18, I moved on to study jazz (piano and bass) for three years at Leeds College of Music in the U.K.. I had some great teachers there, including Bill Kinghorn, Nigel Chapman, Pete Churchill, and the Bebop pianist Joe Palin, who played with Art Farmer and Maynard Ferguson, amongst others.

FIRST GIGS: I played piano in the college big band and played keys and bass with various cover and original bands. We ended up supporting Maceo Parker with a killer original jazz/funk instrumental band called Taxi.

MUSICAL INFLUENCES: Herbie Hancock's Rhodes playing and electric years have been the biggest influence on me. I'm a Fender-Rhodes-aholic, (and I service them too)! Other big influences include Bob James, John Scofield, George Duke, Paul Jackson, Chick Corea, Miles Davis, Patrice Rushen, Stevie Wonder, Prince, D'Angelo, Brian Auger, EWF, Quincy Jones, and Rod Temperton, to name a few!

WHAT I'M LISTENING TO RIGHT NOW: D'Angelo's *Black Messiah*.

INSTRUMENTS PLAYED: Rhodes, Clavinet, analog synths, Hammond B-3 organ, acoustic piano, bass guitar, and a bit of electric guitar, too.

MY BIG BREAK: In 1999, a mutual friend introduced me to Skye, Paul, and Ross from Morcheeba and I subsequently went on to tour, write, and record with them until 2008. As far as my own music, my first JD73 single release was picked up by Nightmares on Wax's *Wax On* label in 2006, and my first JD73 album *Zeros and Ones* dropped on the U.S. label Ropeadope in 2008.

LATEST ALBUM: My last JD73 album, *Pure Gold*, dropped on Joey Negro's *Z Records* in 2010. My next album, *Make Your Move*, will be out in 2015.

FAVORITE KEYBOARD GEAR: My favorite live boards are my Rhodes pianos, Mk. II Janus and Mk. VII MIDI, and my Nord Stage 2 MIDI'ed up to my Moog Minitaur. In the studio, I can't get enough of my Moogs (Little Phatty, Voyager, Memorymoog, Source). I also love the Alesis Andromeda, my Hammond B-3 and 122 Leslie, Suitcase Rhodes, Clavinet D6, Yamaha U1 upright, and Solina String Ensemble.

WHAT'S NEXT: I'm finishing mixing my third JD73 album and preparing to gig with my band, the ElectraSoul Orchestra. I've also just finished writing and mixing a track for Bluey and I'm mixing records for some great artists and remixing as well, including a track for my good friend Bill Laurance of Snarky Puppy, all while fixing up Rhodes pianos and doing online sessions, too.

ADVICE: To advance your playing, I've always found the best approach is to have some classical/jazz scales and modes under your belt initially, then progress to jamming along with your favorite records and transcribing solos by ear. When soloing, make sure that there is real *intention* behind every note you play. It sounds obvious, but just playing pre-learned runs for the sake of it won't make for great music! ♫

JD73 plays the Nord Electro 3.

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BUILD YOUR KNOWLEDGE OF

Chord Theory

BY ROBBIE GENNET

CONTINUING OUR ADVENTURE OF LEARNING MUSICAL CONCEPTS WITHOUT TRADITIONAL NOTATION, WE'RE GOING to look at chords this month. I'll be talking about the note-numbering system establisbed in previous "The Key of One" columns (from January and February 2015), so those will be helpful to have on hand, and should be in the "Keyboard 101" section of our website by the time you read this.

Nearly every song you hear or play uses chords, which, at their most basic, are groups of three notes (triads) with a 1 (the root note) and a 5 on either side, and either a major or minor third in the middle. These fundamental building blocks have many relationships based on the keys and scales in which they are used, and if you know your way around that chord matrix, you can better acquaint yourself with the variety of choices you can make as a songwriter and performer.

Triad Treatments

There are three things you can do with triads:

1. Move around in the middle by choosing between major and minor thirds, or suspending use of the third in favor of the *2* (*sus2*) or the 4 (*sus4*).

2. Raise (augment) or lower (diminish) the fifth by one half-step. That's the closest key on your keyboard to the "regular" fifth, whether it's black or white.

3. Build more notes on top of the chord with sixths, sevenths and the ninth, 11th, and 13th. In fact, these last three can be thought of as the repurposed *2*, *4*, and *6* added on top.

I use the analogy of the basic triads being the "cake" and all the extensions and tweaks being the "frosting." When you're in tune with your basic triads, you can always see the cake through the frosting. I deal with a lot of students who get lost in the frosting, and I realize that if they don't have a grasp of their triads, they don't have any comprehension of the structural movements in the arrangement. I always recommend they dig back into basic triads to solidify their foundation so that any addition or tweak doesn't take their ear away from the triads their understanding. And remember: 12 keys with a major and minor triad in each makes a grand total of 24 basic triads to with which to become familiar. When you look at it that way, 24 doesn't seem like such an overwhelming number of chords to get acquainted with, does it?

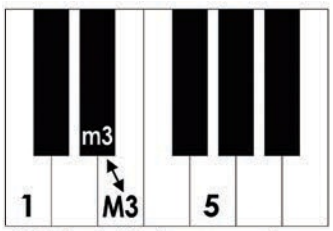
Here are some further ways to build your knowledge of chord theory while also giving yourself a great foundation for soloing and improvising.

Practice Your Inversions

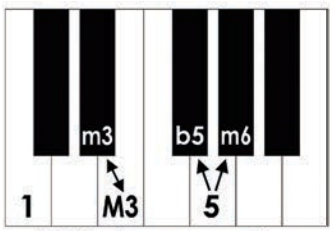
To become more familiar with chords, practicing inversions is one of the best things you can do. What's an inversion? You can actually play the same basic triad chord with the notes in three different orders. There's the root position, which has notes 1, 3, and 5 in ascending order. The first inversion goes 3, 5, and 1 in ascending order (*i.e.*, the root note is actually an octave up, on top. The second inversion places the root in the middle, ascending in order of 5, 1, and 3.

Practice with a single hand at a time to focus on what you're doing. Start with *C* major and play through the inversions up and down two or three octaves. First do it harmonically, then arpeggiate the inversions and play them melodically.

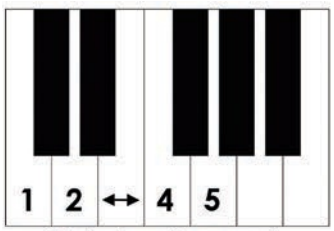
Once you are comfortable, add the note one octave up from whatever the lowest note is in the inversion you're playing. This will have you playing two positions at the same time, which will supercharge this exercise. So, your first position encompasses the root and the first inversion (1 is the octave), your second position encompasses the first and second inversion (3 is the octave), and your last position is second and root inversion (5 is the octave). Do this for each of the 24 chords, and as you get familiar, they'll fall easily under your commanding fingers. Because all songs are ultimately based on these kinds of chord structures, this is one of the most crucial exercises to practice.



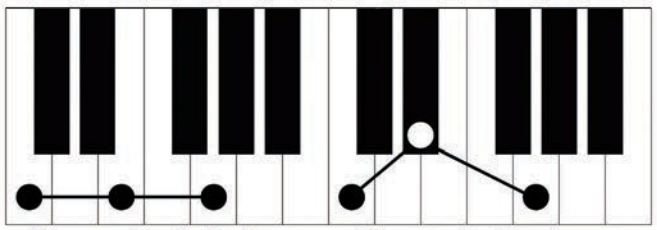
C triad Major vs. minor



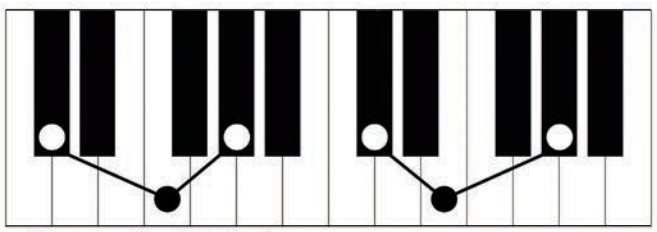
C triad aug vs. dim



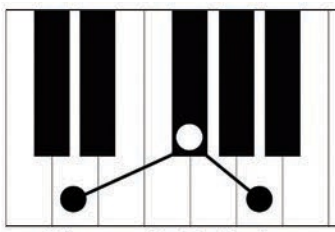
C triad sus2 vs. sus4

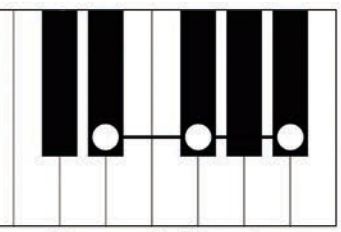

Shape 1: C Major
Same as: Dmin, Emin, F, G, Amin

Shape 2: C minor
Same as: Fmin, Gmin


Shape 3: C# Major
Same as D#, G# Major

Shape 4: C# minor
Same as F#min & G#min


Shape 5: D Major
Same as A, E Major


Shape 6: Eb minor
Same as Gb Major

Find the Similarities

As noted, there are 24 chords, but many of them share similar shapes—by which I mean how they look and feel on the piano keyboard with regard to (a) distance between keys and (b) proportion of white and black keys used.

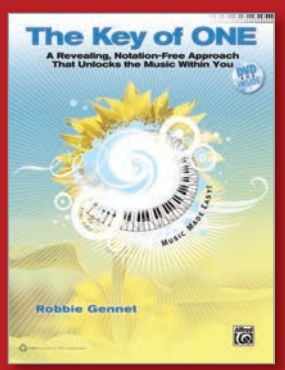
How many shapes? Well, if you factor in that *E♭* minor and *G♭* could be the same shape because they're all on the black keys, then only then basic types of chord shapes exist. Knowing this, you can focus on practicing one shape at a time using different chords. Here's the breakdown of the ten positions, grouped by similarity.

1. *C*, *Dmin*, *Emin*, *F*, *G*, *Am*.
2. *Cmin*, *Fmin*, *Gmin*.
3. *A*, *D*, *E*.
4. *A♭*, *D♭*, *E♭*.
5. *G♭min*, *Abmin*, *Dbmin*.
6. *Ebmin*, *G♭*.
7. *B♭*.
8. *B♭min*.
9. *B*.
10. *Bmin*.

Those last four chords are unique, so each is in a group by itself. Play through your inversions using these groupings and you will notice with the first six, the shapes of the chords and their inversions are exactly the same. This is how we focus on commonalities to reduce the "size" of music for a more manageable learning experience.

We build on these common shapes to help us become familiar with chords and how and where we choose to play them. When you do this, your hands will begin to find the closest inversions intuitively as you run through chord changes. In fact, with all of the overlap of chords and inversions on the piano, you could play every single one of those 24 chords without moving your hand off of the middle position. Try that as an added exercise; you'll boost your ability to navigate the chord matrix and make every song easier to play.

In the next "The Key of One" column, we'll learn tricks and tips for better improvising, songwriting, and chord choices. See you next month! ♫



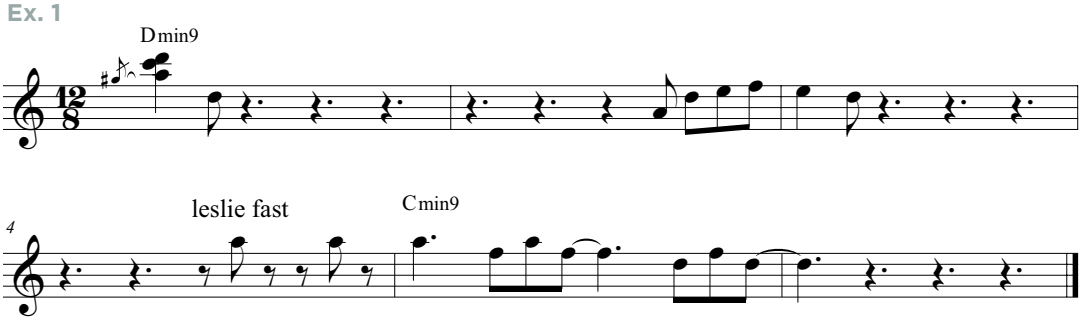
Robbie Gennet is a touring keyboardist, guitarist, longtime *Keyboard* contributor, and educator at Musicians' Institute in Hollywood, California. His book, *The Key of One* (Alfred Music) outlines a thorough method for understanding music without learning traditional notation. You can get it at alfredmusic.com, and take private lessons from Robbie at thekeyofone.com.

5 WAYS TO PLAY LIKE Gregg Rolie

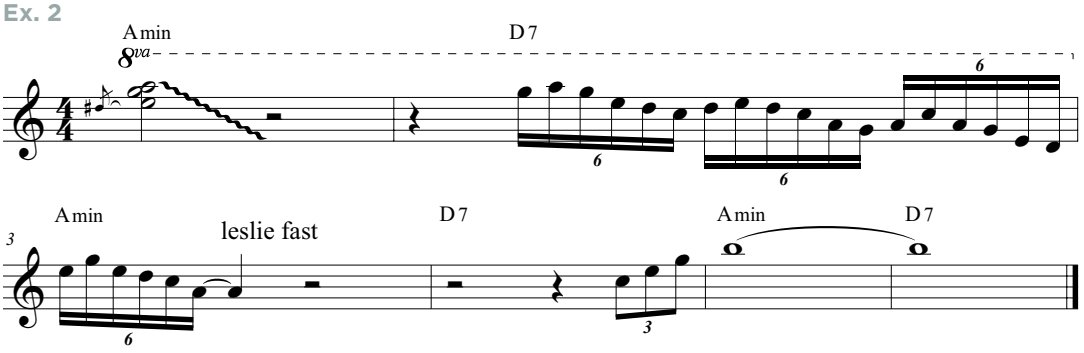
BY BRIAN CHARETTE

GREGG ROLIE'S PLAYING IS A BLUEPRINT FOR HOW TO PLAY KEYBOARDS IN A ROCK band. As a founding member of the bands Santana and Journey, Rolie has done just about everything. This month, let's explore some key elements of Rolie's playing with exercises that delve into his unique keyboard style. For further mastery of these concepts, try transposing the following examples into all 12 keys on your own.

Ex. 1



Ex. 2



1. Afro Blues

Afro-Cuban music and blues meet in the middle in **Ex. 1**. Rolie's organ riffs often cover maximum ground with just a few simple ideas, which this example in the style of his work with Santana demonstrates. This solo begins with a bluesy crunch with notes from the *D* blues scale (*D*, *F*, *G*, *A*♭, *A*, *C*, *D*). Bars 2 and 3 have a simple melody coming from the *D* Dorian mode (*D*, *E*, *F*, *G*, *A*, *B*, *C*, *D*). Rolie keeps the *D* minor sound by arpeggiating the triad as the harmony changes to *C* minor. The triad creates nice chord tones (such as the 9th, 11th and 13th) when played over the C tonality.

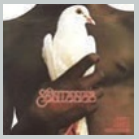
2. "Como" Chameleon

Ex. 2 illustrates more of Rolie's signature Hammond work on songs like Santana's "Oye Como Va." This example begins with another blues shout, this time in a higher register. Pull all of your drawbars out here and dial up the distortion. Bar 2 has a fast *A* minor pentatonic riff (*A*, *C*, *D*, *E*, *G*, *A*) with a six-note motif that repeats as the scale descends. You don't need to be super-precise with these kinds of lines; a little "smush" sounds great on the organ. Add some fast Leslie at the end of the line here as well.

Listening List Gregg Rolie

"Incident at Neshabur" from Santana's *Abraxas*

"Oye Como Va" from Santana's *Abraxas*

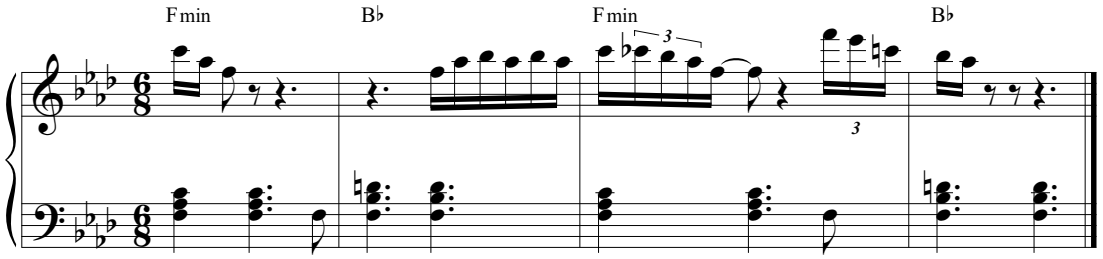


"Treat" from Santana's *Santana*

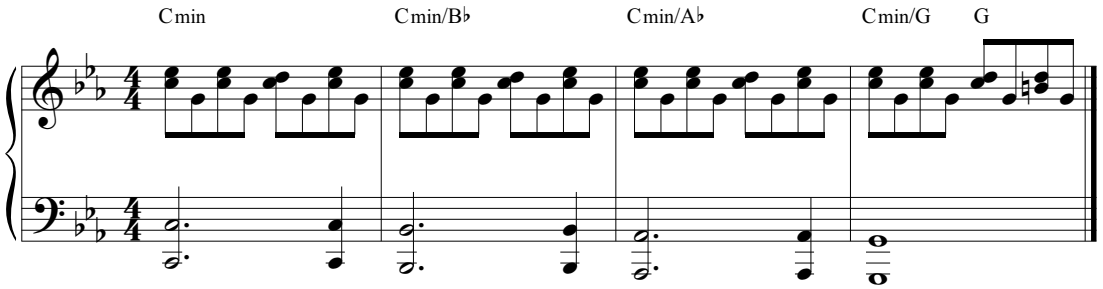
"Winds of March" from Journey's *Infinity*

"Domingo" from Gregg Rolie's *Roots*

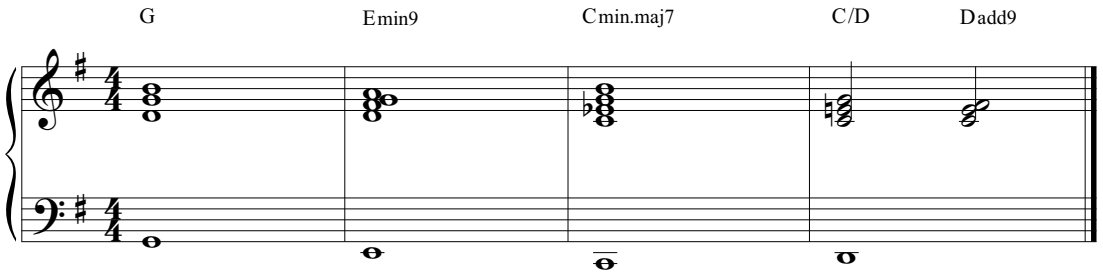
Ex. 3



Ex. 4



Ex. 5



"Gregg Rolie's solos and keyboard parts are iconic in their soulfulness, simplicity, and sound," says keyboardist and composer **Brian Charette**, who has performed and recorded with artists like Joni Mitchell, Michael Bublé, and Rufus Wainwright in addition to leading his own jazz groups. Charette recently won Downbeat Magazine's "Rising Star, Organ" award and released the album *Good Tipper*. He also has a new book out entitled *101 Hammond B-3 Tips: Stuff All the Pros Know and Use*. Find out more at brian-charette.squarespace.com.

3. Blues Piano

Ex. 3 illustrates some stylistic elements of Rolie's piano work. In the left hand, simple triads outline the harmonic motion of *F* minor to *B♭*. Over the ostinato, the right hand spins bluesy fills. All the notes in this exercise come from the *F* minor blues scale (*F*, *A♭*, *B♭*, *C♭*, *C*, *E♭*, *F*). As an experiment, try catching the sustained left hand chords with the pedal, and play light and sensitively.

4. Journey Piano

Ex. 4 is another example of Rolie's piano parts, this time from his days with the rock supergroup Journey. Here, the right hand plays a simple triadic shape that dances between the minor third and ninth chord tones. As the bass line descends, the right hand part stays where it is creating additional harmonic interest. Notice bar 3 where the *C* minor over *A♭* creates a nice *A♭maj7* chord. In the last bar, the *C* in our right hand part slips down a half step to *B* to outline the *G* chord.

5. Synth Pads

Rolie is as convincing on synthesizers as he is on the Hammond organ. **Ex. 5** illustrates a synth pad progression typical of some of those he played on his solo projects. Dial up a fat analog pad on your synth or laptop. Set the cutoff frequency not too high, with a lowpass filter for some nice gentle pads. I've put a few unusual notes in this example just for fun and to demonstrate additional harmonic possibilities. In the last bar, a suspension resolves to the third of *D*, which is the *V* chord here. ♫

Hear Brian play the audio examples from this lesson.

keyboardmag.com/march2015

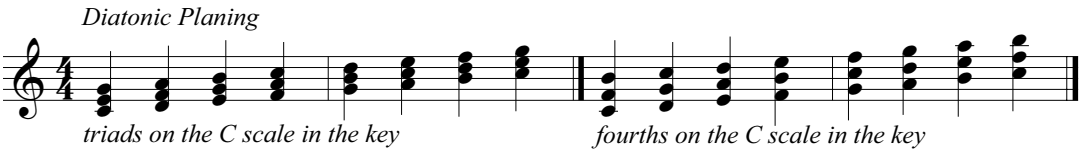
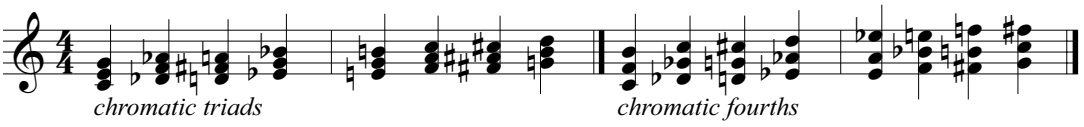
A People's Planing Primer

BY GEORGE COLLIGAN

I ATTENDED THE PEABODY CONSERVATORY OF MUSIC IN BALTIMORE, MARYLAND. IN MY THEORY CLASS, PROFESSOR Thomas Benjamin introduced me to the concept of *harmonic planing*. Whereas most 19th-century harmony deals with tonic-dominant-tonic motion (and its many alternate paths), 20th-century harmony is a completely different animal altogether. Composers like Claude Debussy, Igor Stravinsky, Olivier Messiaen, and many others threw the theory and voice leading concepts of previous generations out the window and basically said, "If it sounds good, it is good!"

Jazz harmony, which of course has undeniable roots in 19th-century European music (in addition to African rhythm, blues, and spirituals), made great use of 20th-century harmonic concepts. When you consider that Charlie Parker cited Igor Stravinsky as an influence—and that Stravinsky was influenced by ragtime and jazz—you come to understand the cross-pollination that has occurred between musical genres over the years.

In planing, instead of chord motion being based on voice leading and root movements, voices move according to the key or scale (as in *diatonic* planing), or the same voicing may move around chromatically (as in *chromatic* planing). Let's take a look at planing in action.

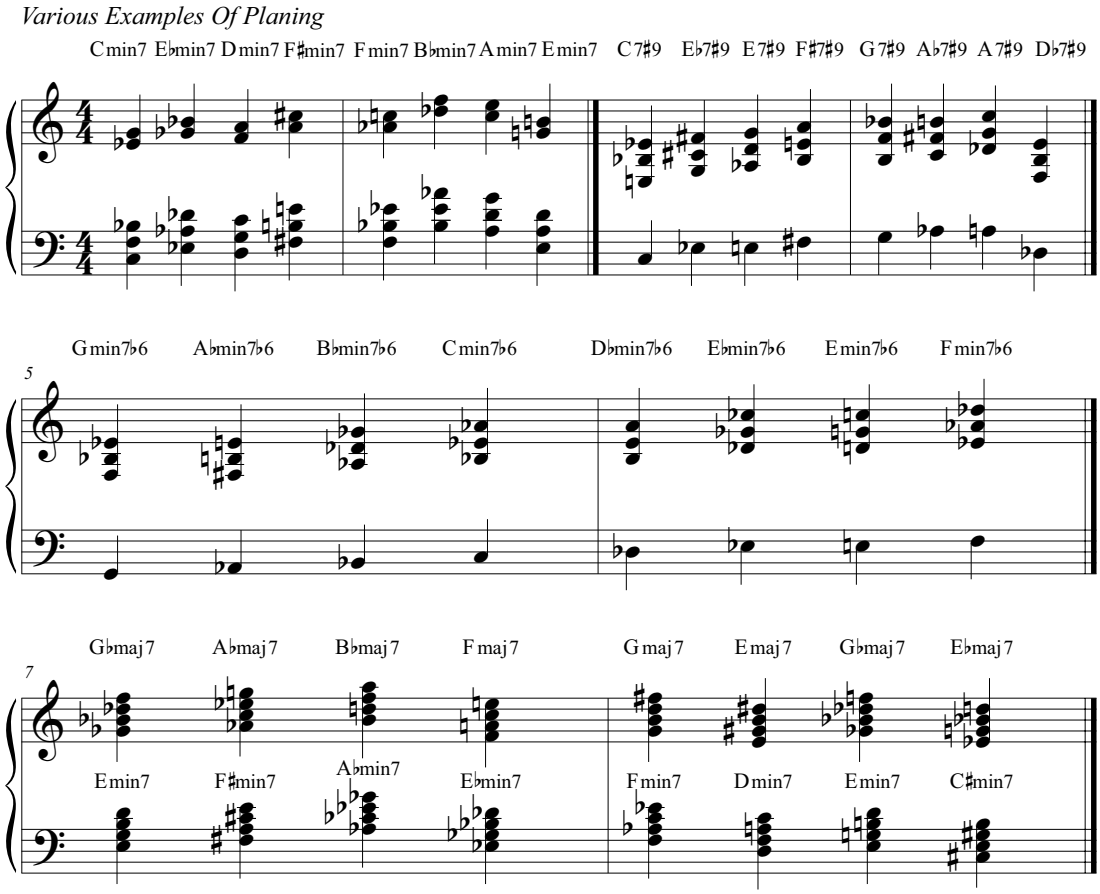
Ex. 1.

Ex. 2.

1. Diatonic Planing

Ex. 1 illustrates diatonic planing, *i.e.*, moving voices around according to the scale or key. Note that you can move all kinds of chord shapes around: triads, fourths, or whatever you want. With planing, you don't have to worry about root movement. You only need to be concerned about how one chord sounds after another.

2. Chromatic Planing

Ex. 2 demonstrates the same idea in chromatic form. Here, we're moving triads and fourths around chromatically. This is where things start to get interesting . . .

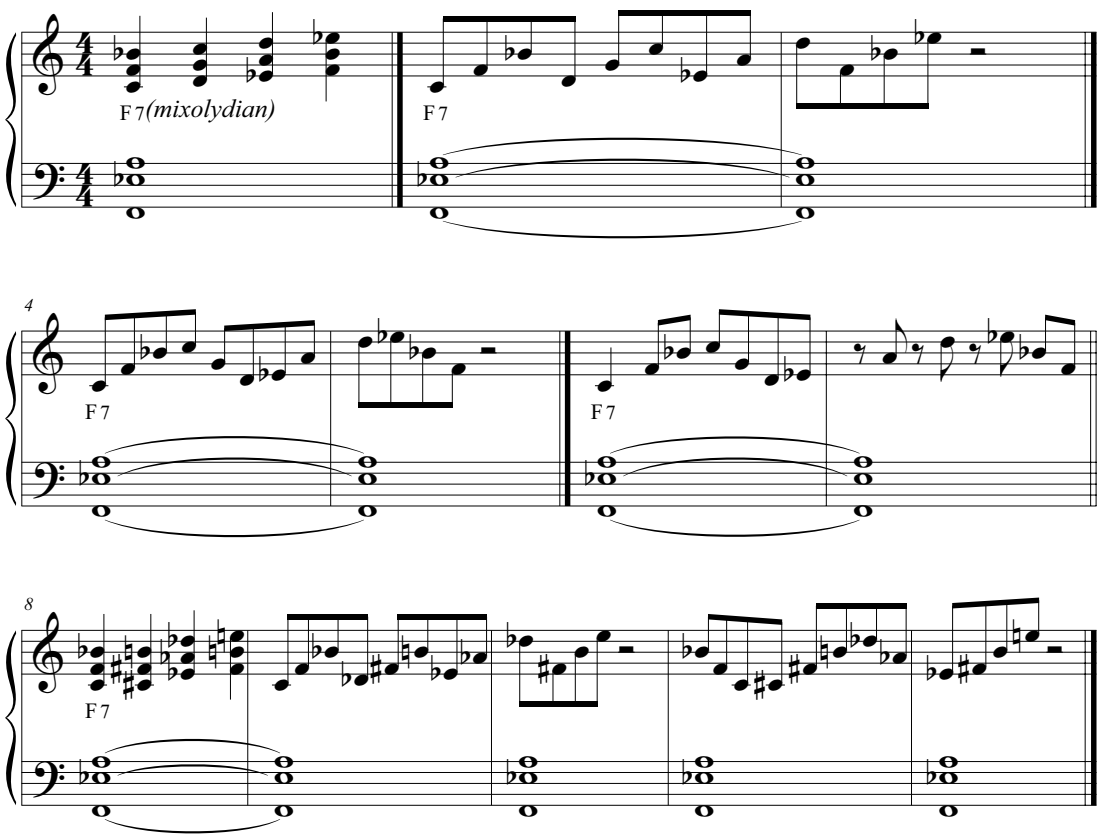
Ex. 3.



3. Mixed Planing

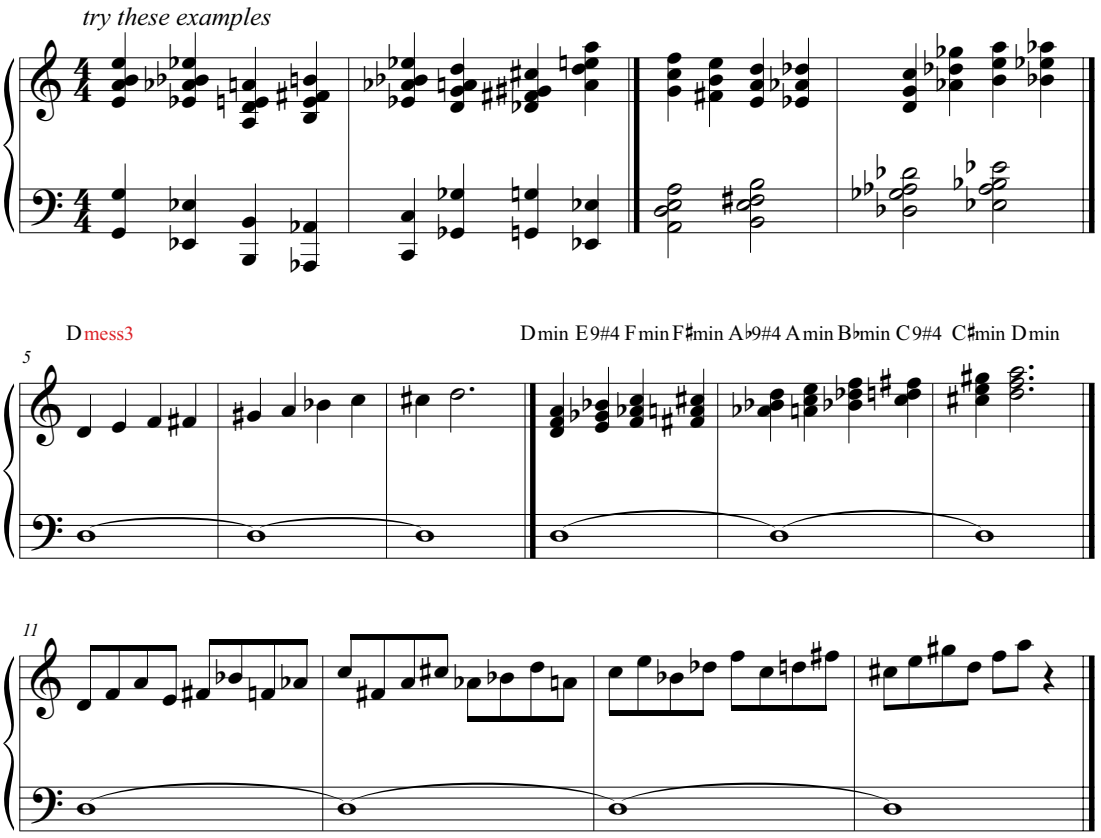
Ex. 3 shows different practical applications of planing. First we see a typical jazz voicing for minor chords moving around *randomly*. Next we see the same idea with a dominant 7♯9-type voicing. The important thing to remember here is that the 7♯9 chords are no longer functional; they're simply colorful sounds that move according to where you want the melodic line to go. The next two examples use a minor ♭6 chord that sounds intriguing, and then my own planing creation: a *G♭maj7* in the right hand over an *Emin7* in the left hand. The point being, once you find a sound, it's up to you where you want to take it!

Ex. 4.



4. Solo Planing

Ex. 4 demonstrates ways in which you can use planing to create solo lines. With this technique, the chords become the melody. Obviously, the more creative you are with the rhythm and how you vary the shape of the line, the more interesting your solo becomes. Here, I included examples of both diatonic and chromatic planing.

Ex. 5.

5. Advanced Planing

In **Ex. 5**, I show more options on how to take planing to the next level. The first two examples demonstrate how you can put a desired sound in either hand and it sounds great regardless. Next I include a diatonic example of Messiaen's *third mode* (*Keyboard* contributor Brian Charette wrote a terrific column on Messiaen's modes in the April 2011 issue) in a chord motion and as a linear manifestation as well. ♫

Practice Tip

"Most jazz pianists, in addition to studying things like bebop lines and standard chord progressions, have some experience with planing. Renowned pianists like McCoy Tyner, Herbie Hancock, Chick Corea, and countless others have explored this technique in depth," says jazz pianist, composer, and educator **George Colligan**. A sought-after jazz sideman for over two decades, Colligan currently leads his own groups and tours with renowned drummer Jack DeJohnette. He is also Jazz Area Coordinator at Portland State University in Oregon. Colligan's latest album *The Endless Mysteries* is out now. Find out more at georgecolligan.com.

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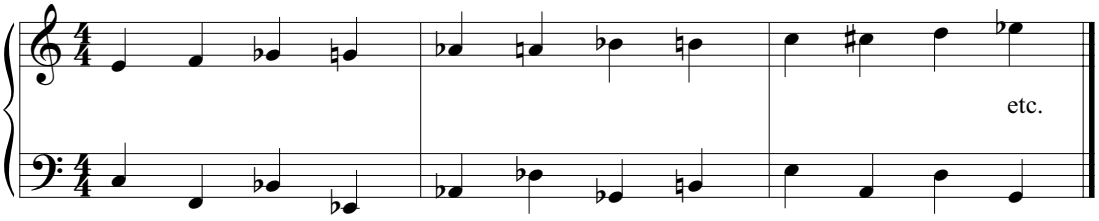
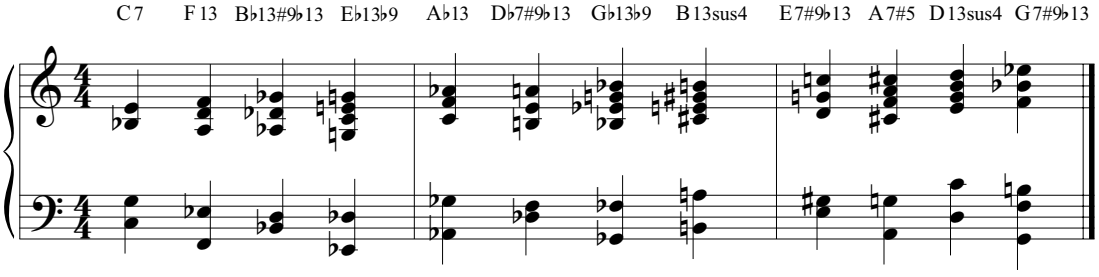
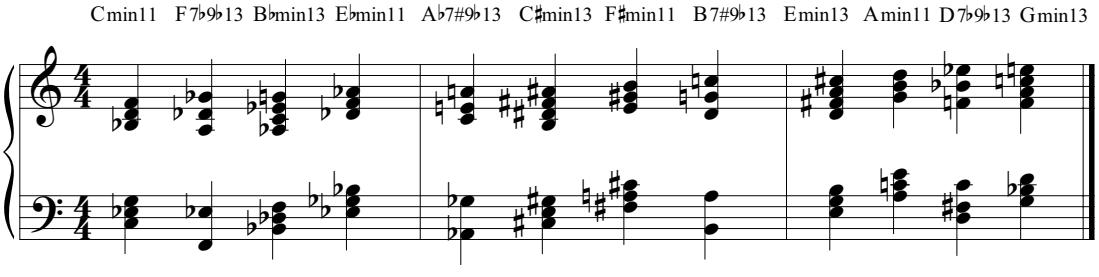
Jazz Voicing WARM-UPS

BY GEOFFREY KEEZER

AS A TOURING JAZZ PIANIST, I RARELY HAVE MUCH TIME TO PRACTICE WHEN I'M ON the road. If I'm lucky, I might get five minutes at sound check, so I need a quick and efficient warm-up routine to supplement basic scales and arpeggios. The following exercises are a great way to stretch my hands, get the feel of the keyboard, and engage my "jazz brain," all in a limited amount of time.

Ex. 1

Ex. 2



Ex. 3

1. It Takes Two

In **Ex. 1**, choose any two notes that are slightly more than an octave apart as a starting point. Then the right hand ascends chromatically, while the left hand follows the cycle of fourths.

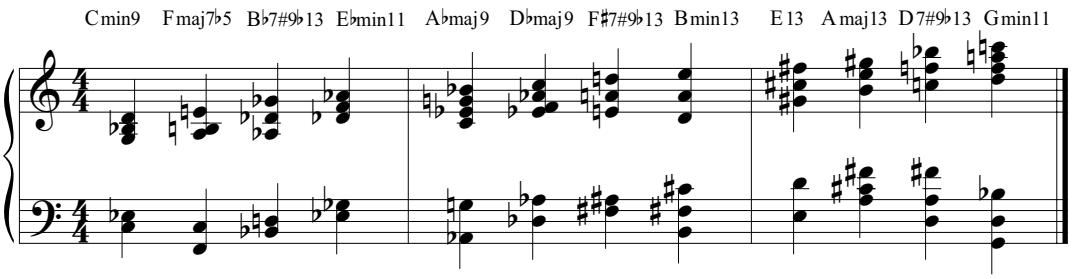
2. Creative Chording

In between your "bookend" notes, fill in the gaps with chords, as illustrated in **Ex. 2**. There are no rules here—just trust your ears, creativity, and intuition, and strive for good *voice leading*. For example, in bar 1, the right hand's thumb plays *B♭-A-A♭-G*, which corresponds to the seventh and third of each chord, respectively. Try to get an even intervallic spread that sounds good and feels comfortable physically.

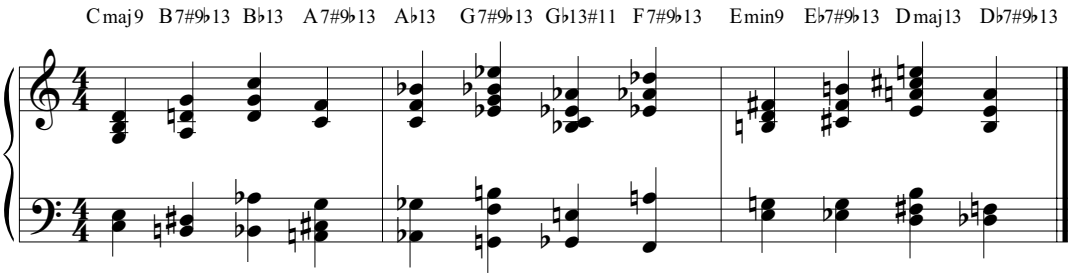
3. Minor Chord Workout

Ex. 3 expands on our concept of creative chord motion. Note that if you choose bookend notes that form an 11th (like playing *F* in the right hand and *C* in the left hand), minor chords typically work better than dominant major sevenths. We're not going for avant-garde sounds or unusual suspensions here, so keep your voicings fairly clear and simple. Start slowly, and when you feel comfortable with this exercise, gradually pick up the tempo.

Ex. 4



Ex. 5



4. Whole-Steps and Cycles

In **Ex. 4**, the right hand climbs by whole-steps while the left hand continues to cycle through fourths. This exercise opens up another can of harmonic worms because your voicings will spread out faster. If you have small hands, don't worry about big stretches. Simply shift octaves wherever necessary to keep your voicings compact. Warming up should never be painful!

5. Change Partners

In **Ex. 5**, the right hand and left hand switch roles. Here the left hand descends chromatically while the right hand cycles through fourths. Remember that there are many other warm-up combinations you can try. Simply pick any two starting notes (try closing your eyes and plunking your hands down on the piano) and watch what happens! ♫

"The main idea of these voicing warm-ups is to stretch your fingers while gently engaging your harmonic brain," says **Geoffrey Keezer**, who joined Art Blakey's Jazz Messengers at age 18 and has since worked with Sting, Diana Krall, and Wayne Shorter. Keezer currently plays piano in trumpeter Chris Botti's band, and his latest solo release is *Heart of the Piano*. He offers online video piano lessons at KeezersPianoLessons.com.

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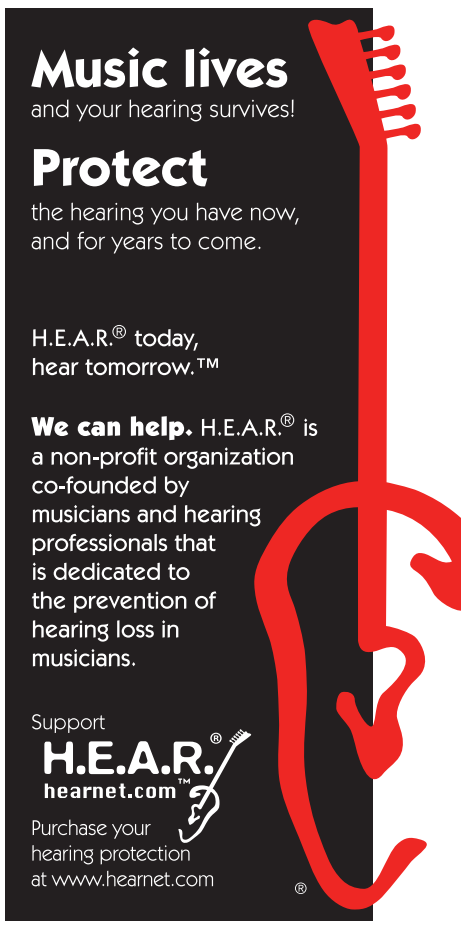
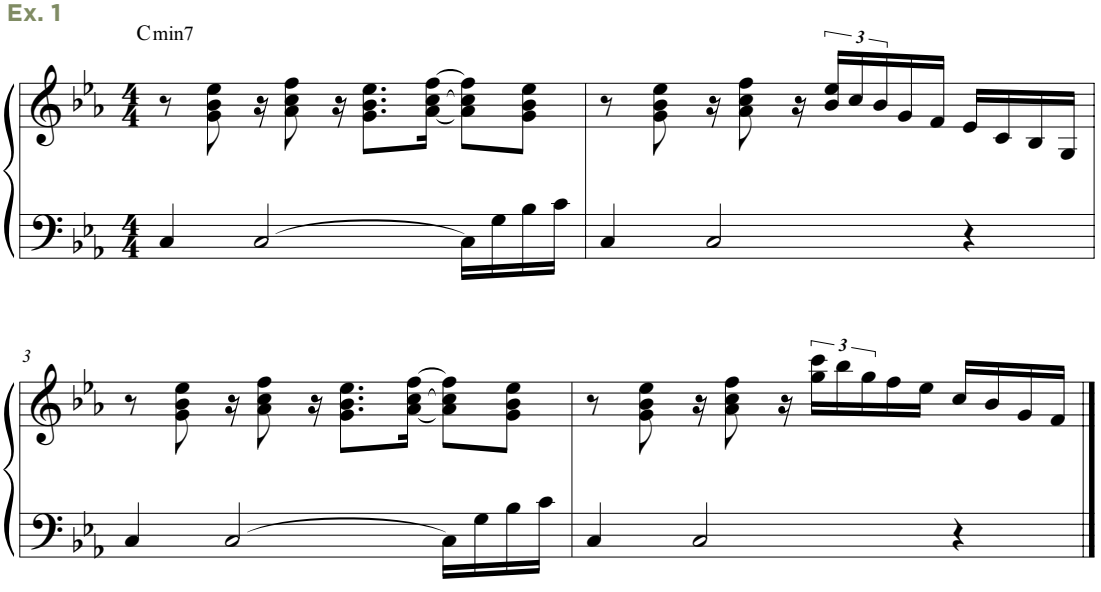


AURELIO MORAES

5 (MORE) WAYS TO PLAY LIKE Rick Wakeman

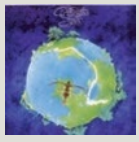
BY BRIAN CHARETTE

RICK WAKEMAN IS ONE OF THE MOST INFLUENTIAL PROGRESSIVE ROCK KEYBOARDISTS OF ALL TIME. WHILE A MEMBER of the groundbreaking English group Yes in the 1970s, Wakeman revolutionized perceptions of the rock keyboard rig by using a massive helping of the most sought-after keyboards of the day, oftentimes playing multiple instruments simultaneously. Wakeman was also a prolific solo and session musician, playing with everyone from David Bowie to Black Sabbath, and releasing his own albums. In 2010, frequent *Keyboard* contributor Matt Beck examined five signature elements of Wakeman's style. This month, we explore five more components that have helped make Wakeman a living keyboard legend.

Ex. 1

1. Clavinet Riffs

Ex. 1 is a Clavinet riff inspired by Wakeman's keyboard work on his first solo album *The Six Wives of Henry VIII*. Here we see diatonic triads (E♭ and F) from *the C* Dorian mode (*C*, *D*, E♭, *F*, *G*, *A*, B♭, *C*) mixed with triplet blues riffs from the *C* Minor pentatonic scale (*C*, E♭, *F*, *G*, B♭, *C*). Notice how the bass pedal points hit in the spaces of the right-hand part. This is an effective technique on Clav, and it adds a sense of rhythmic propulsion as well. Try this during a band breakdown passage, and make sure to practice it in all 12 keys so you can use it at a moment's notice.

Listening List Rick Wakeman



YES
Fragile

YES
Close to the Edge

RICK WAKEMAN
The Six Wives of Henry VIII

Hear Brian play the audio examples from this lesson online.

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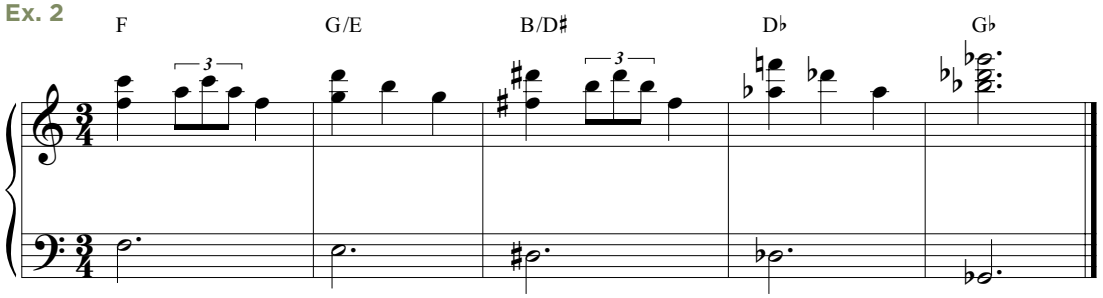
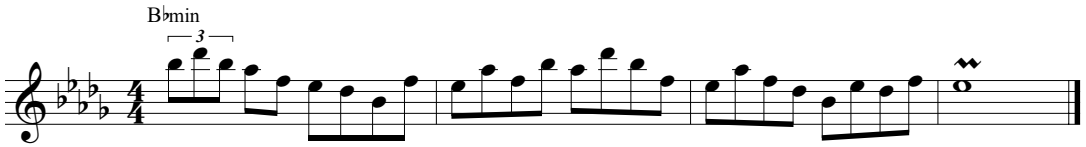
Ex. 2



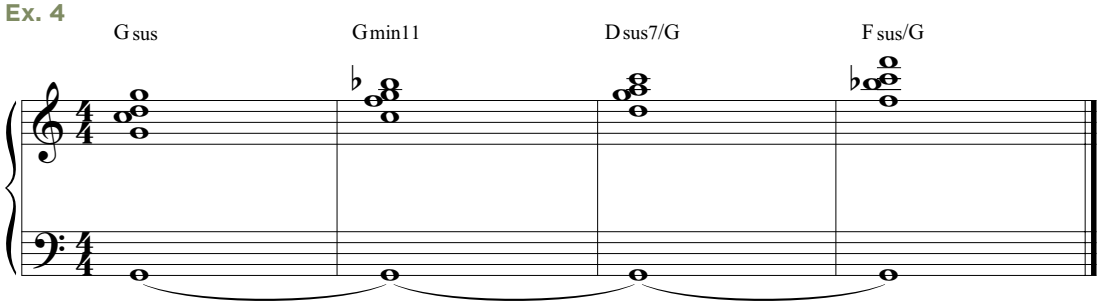
2. Classical Textures

Ex. 2 is inspired by a piano breakdown on the classic Yes album *Fragile*. Here we see Wakeman's penchant for triplet rhythms again. The bass line descends as triadic shapes create interesting contrary motion and twisting harmonies. Notice how the bass notes create more involved harmony when combined with the triads. For example, the *G* triad over an *E* bass line in Bar 2 yields an *Emin7* chord. Notice also how we modulate to different key centers by moving the bass line in half steps. In Bar 3, we quickly modulate to the key of *E* for a moment before arriving at a cadence on *G♭* in the last bar. This harmony sounds surprising coming from the unrelated *E* minor tonality of bar 2. When coming up with your own solo piano interludes, don't be afraid to experiment with modulating to unusual keys.

Ex. 3

3. Synth Leads

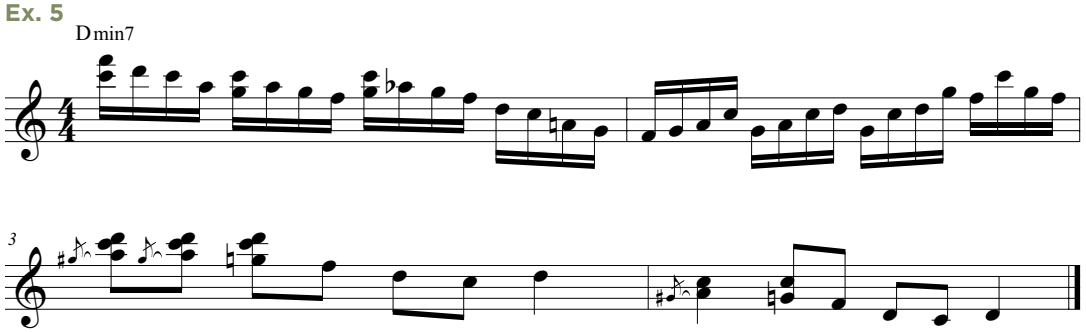
Back in the day, some of Yes's most groundbreaking sounds came from the then-new Minimoog synthesizer. Wakeman would use this instrument for searing mono lead sounds and unusual effects. (Check out the Yes album *Close to the Edge* for examples of great Moog playing). In **Ex. 3**, I've composed a short solo with the *B♭* minor pentatonic scale that captures the spirit of Wakeman's synth work. Try using this line over *G♭* major, *B♭* minor, and *E♭7* chords. In bar 2, I play the scale in fourth shapes to impart a little interest and diversity into the line. By the last half of bar 2, I start a pattern of skipping one note in the scale as the pattern ascends, and skipping the third note or original starting note on the way back down. Utilizing this system of skips will yield interesting intervals in your pentatonic lines. In the last bar, I add even more excitement with the mod wheel. Experiment with putting skips in your pentatonic lines and vary which note you skip. Think like Rick and mix it up!

Ex. 4



4. ARP It!

Another 1970s keyboard innovation was the Arp Odyssey, which Wakeman used extensively for his pad sounds. In **Ex. 4**, I re-create this idea in the digital age, with a delay-soaked analog pad from the free U-He soft synth Tyrell 6. Over a static bass line we move *sus4* shapes built exclusively from notes in the *G* Dorian mode (*G*, *A*, *B♭*, *C*, *D*, *E*, *F*, *G*). The ascending chords create nice colors that bleed into each other because of the long decay and effects on the sound. On your own, experiment with slowly moving the cutoff frequency to create more motion.

Ex. 5

5. Organ Solos

Ex 5 is influenced by Wakeman's great Hammond organ solo on "Roundabout" from *Fragile*. On the solo, Wakeman drowns his B-3 in a lot of distortion, using a drawbar setting of *88 8800 000*. Note that he also employs the third percussion harmonic and the slow, or Chorale, setting on his Leslie. All the material for the line comes from the *D* blues scale (*D*, *F*, *G*, *A♭*, *A*, *C*, *D*). An important technique in this type of organ playing is to play a little sloppy. This creates a great texture especially with the distortion. Don't be afraid to "schmeer" the notes together and hit different notes of the scale simultaneously to create interesting intervals and dissonances. ♫

THE ART OF SYNTH SOLOING

Jan Hammer
The Primal Synth Soloist

BY JERRY KOVARSKY

WHEN YOU PLAY A LEAD SYNTH LINE OR SOLO AND BEND SOME NOTES, YOU owe some thanks to a certain keyboardist. He defined the art of using the synthesizer as a expressive instrument, and stood toe to toe with many of the guitar greats of the last few decades. I could go on (and on) but we all know I am talking about the inimitable Jan Hammer. Space doesn't permit me to tell his musical story, so look to back issues such as January 1995, April 1993, September 1985, October 1978, and even August 1976 (the seventh issue of *Keyboard*, if you can find it!) for more on his career.

Over the next few columns we'll dissect his signature sounds and some aspects of his playing in order to better understand this musical giant.

Sound? Which Sound?

For most people, Hammer is known for his searing and soaring guitar-like lead synth sound, followed by a more gentle sound that's often described as "flute-like," which is really a more hollow square-wave sound. When you research the development of his oft-imitated lead sound, you find that "the" Jan Hammer sound was constantly evolving. Visit keyboardmag.com/march2015 for some audio examples of this.

The First Sound(s)

Hammer first recorded with a synthesizer (a Minimoog) on the Mahavishnu Orchestra's second album, *Birds of Fire*. On this album, his synth sound is different for each track he plays. Generally, his strong lead sounds are more sawtooth wave-based and have a percussive attack, and on the mellower cut "Sanctuary," he first introduces his flute-like sound, with a hollower tone and softer attack.

As a starting place set up a two-oscillator sound with dual sawtooth waves and very little detuning. Use a 24dB-per-octave (four-pole) lowpass filter with cutoff set within the first 30 percent of the range. Modulate that cutoff with an envelope with instant attack, a small amount of decay and medium sustain. The amount that the envelope modulates the filter is up to you: Remember that it interacts with the filter cutoff, so experiment freely.

The amplitude envelope should have an instant attack, fast decay, and full sustain level, with no noticeable release. See **Fig.1** for a Minimoog front panel shot of these settings. This sounds like "lead synth 101" stuff, except perhaps for the fast filter decay. And it is. From this simple template you can shape a lot of variations.

Attitude Adjustment

Before we start shaping the sound more, we need to add some aggressive edge to it. On *Birds of Fire* Hammer's tones are all slightly overdriven. He began using tube guitar amps, and in later years moved on to devices like the Scholz Research and Development Rockman, and even a battery-powered Pignose amp. Look back to my June and July 2013 articles for tips on how to add edge to your sound. Filter overdrive, distortion, subtle waveshaping modulation, or full-on guitar amp simulations and distortion/overdrive effects are all fair game. Just don't go too far with it; we still want to sound like a synth, not a full-out fuzz guitar.

Variations on a Tone

From this basic template you can build up plenty of variations. Here are some common tweaks he did.

1. Change oscillator 2 to a square wave (or 50 percent pulse).
2. Change the filter attack to a slightly slower value, to produce a slight chirp; not too slow, perhaps 4ms (see **Fig. 2**).
3. Close the filter cutoff completely, increase the resonance, and decrease the filter decay (see **Fig. 3**). This produces a very percussive, clipped resonance tone. For added expression, route velocity to the filter cutoff amount slightly. Hammer would have done this using a pedal.

The Next Generation

Pretty quickly, Hammer added an Oberheim SEM module to his setup, later replacing it with an Oberheim Xpander. In every interview I've ever read with Hammer, this would be described as a "Minimoog and Oberheim combination," specifically adding synced oscillators to the blend. But I recently spoke to Jan, and he told me that it really was just the Oberheim, being driven from the Moog keyboard—no layering involved. You heard it here first! So, it's time to go back to your sync oscillator knowledge (see the September, October, and November 2012 columns). You still want to get some percussive attack from the quick decay on the filter envelope. It's important not to sweep the pitch of the modulating oscillator; tune it to a harmonic that you like and leave it straight. I like using +6 half-steps, with a bit more detuning, but so many settings work well. Okay, it can sound nice to have a slight amount of pitch sweep, but your ear shouldn't hear it, so much as you just add a little "interest" to the sound. Assign some controller to sweep that pitch on lower notes as a nice highlight when you're soloing.

For more movement in the sound, Hammer used a slight bit of flanging, coming from an MXR black-face pedal (now reissued by Dunlop). The LFO sweep should be very slow, with little to no regeneration. We want it to add slight motion to the sound without it becoming too noticeable. His settings did get deeper around the time of

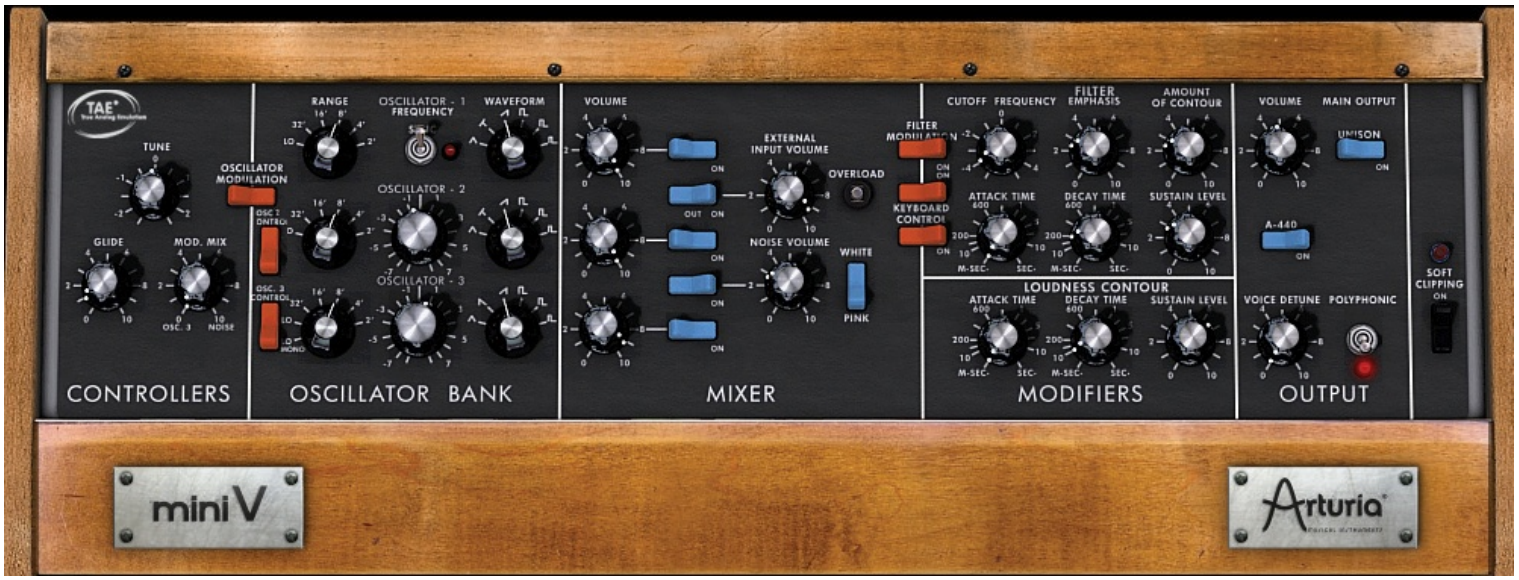


Fig. 1. The basic lead sound template.

Fig. 2. The square wave with a slight chirp attack.

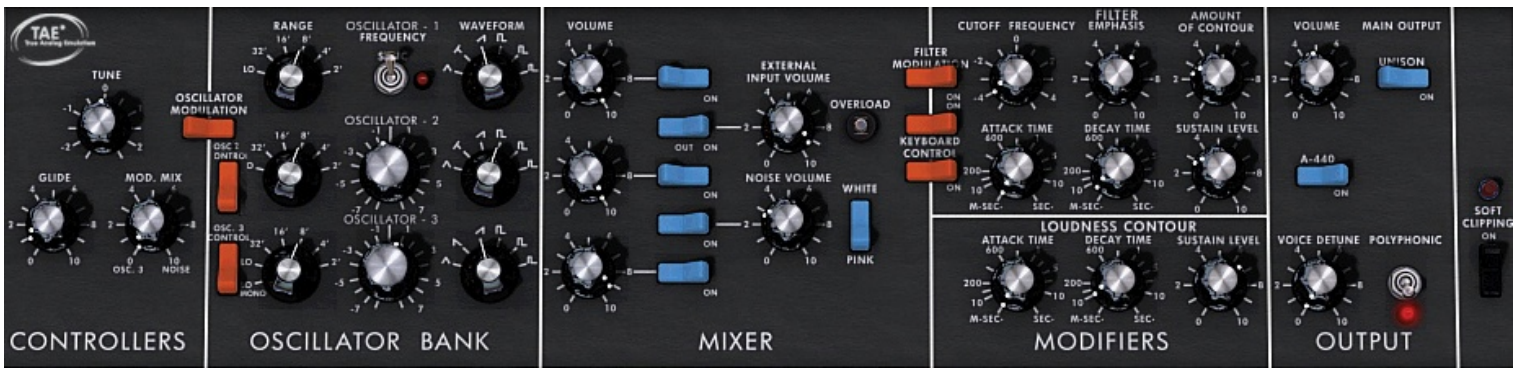


Fig. 3. The percussive resonance setting.

"Blue Wind" from Jeff Beck's *Wired* album. Around 1976 he started to use delay on his sound, originally from a Maestro Echoplex, and it remained an integral part of his rig ever since.

Onward

By the mid-1980s (and the beginning of *Miami Vice*), Hammer had traded the Minimoog/Oberheim combination for a Memorymoog, which gave him the synced oscillators he wanted, and he continued using the flanger and guitar amps. In the early '90s, he began using the Fairlight and sampled sounds, eventually trading in analog oscillators for real guitar samples that he would layer with other synths (like the Korg O1/W) for controllable feedback elements and movement. When Hammer appeared at the 2006 Moogfest in New York he certainly played a lot of important parts on a Moog Voyager, but when it came time to take a trademark solo, he played it on a Korg Triton Extreme with the added MOSS board to deliver a screaming synced oscillator sound.

No matter what instrument he plays, it always comes out sounding like *that* sound. That's the sign of a true master. Next month, we'll examine more sounds and do some note/scale analysis. ♫

SOUNDCLOUD

Audio examples of Jan Hammer's lead synth sound over the years.

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Bass Racks

WHY ABLETON DRUM RACKS AREN'T JUST FOR DRUMS

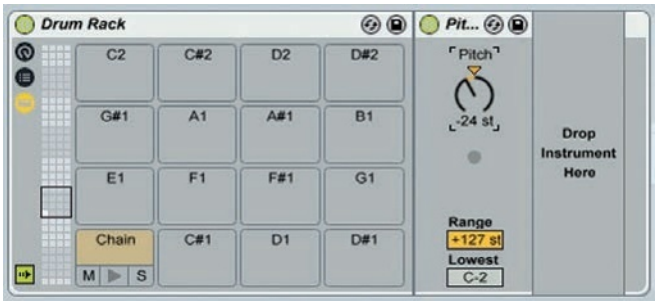
BY FRANCIS PRÈVE

ABLETON'S DRUM RACKS ARE SO FLEXIBLE FOR CREATING CUSTOM DRUM KITS THAT IT'S A SHAME THAT MANY USERS don't dig deeper than using sampled drums with a few effects for flavor. One of the coolest things about Drum Racks is that you can put *any* synth on each of their pads, including third-party plug-ins.

This makes them an incredible tool for intricate synth riffs and complex instruments. One designer even went so far as to create a "treated piano" by adding pianos to all of the pads and processing each note with different settings and effects. For this tutorial, we'll use Drum Racks for something a little more straightforward: creating bass lines with a different synth for each note. This technique results in really innovative sounds with a lot of character and is relatively easy to do, if you follow these simple steps.

Step 1

Create a track containing a drum rack. Because the drum rack defaults to triggering every note to *C3*, you'll need to familiarize yourself with various tuning options. Although you can tune your notes via Drum Racks' Input/Output chain option, it's actually faster to leave it closed and add the Ableton MIDI Device called "Pitch," which is a simple transpose knob. Since we're making a bass line, tune the pitch knob to -24 semitones (*C1*).



Step 2

To keep things simple, we'll make a four-note bass line using four different synths. Because Drum Racks will accept any kind of synth, for this tutorial I used an Operator, two Arturia Minimoogs, and the Korg M1 (playing the ever-popular "Organ 2" preset).

Step 3

To start, we need to pick the sounds for each synth. You can use presets or design your own, but as you work, you'll want to audition all four bass sounds in relationship to each other. To make this easy, create a simple half-bar loop that plays all four pads in succession.

Step 4

Once you've finalized your bass sounds, go back to your Pitch devices and pick a few different notes. For this example, I tuned each synth to -24, -9, -12, and -21, which works out to C1, E2, C2, and E1, which is essentially a simple minor third riff. Letting the test loop cycle as you select the pitches makes this process a lot easier.

Step 5

Now you're ready to make your bass line. Since the notes and sounds are all ready to roll, the programming technique is extremely straightforward and makes experimentation fun. Just move the note events around until you find a groove you like.

Listen to audio examples.

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MELLOTRON M4000D Mini

BY TOM BRISLIN

IT WOULD SEEM THAT whenever a Mellotron comes up in conversation, a history lesson ensues. The experienced keyboard aficionado knows the legend, yet for the newcomers, there is continued fascination with the instrument. To describe how the instrument works is to tell a steampunk tale of a keyboard that played analog tapes of sounds it sought to emulate. The classic recordings of the 1960s and 1970s (think late-era Beatles and early progressive rock) continue to inspire and lead musicians to discover the sounds, which to this day still ooze personality—and have been described in print a record number of times as "haunting." Under the direction of Markus Resch, Sweden's Mellotron company still produces tape-based instruments (the Mk. VI and Mk. VII) and brought the 'Tron into the digital era with the M4000D (reviewed July '13). That instrument provided faithful, 24-bit samples of many classic Mellotron (and related Chamberlin) sounds in a portable package. They've trimmed some physical features and made a more affordable option in the M4000D mini, which we'll discuss here. Let's see how the experience stacks up with its sibling instruments.

Form Factor

Visually, the Mini takes cues from the classic M400 (as do the modern Mark VI and 4000D). It sports a white metal case with a 37-note Fatar keyboard action with touch-sensitive, plastic keys (no aftertouch). The bigger M4000D uses a wood casing and also a true Mellotron-style wooden keyboard action that even has polyphonic aftertouch. Like its bigger brother, the Mini's flat top surface can hold a few items or even a small keyboard—and in fact, the Mini is sized to sit perfectly atop the M4000D. It's

Snap Judgment

PROS High-quality metal casing. Design and interface evoke classic Mellotron experience with modern conveniences. Expandable sound library. Instant layering of any two sounds. Lower price than M4000D.

CONS Keys are not aftertouch-sensitive. Still could be considered pricey. Modified foot controllers required for some control features.

the most lightweight instrument to carry the Mellotron name, at 21 pounds. Like the M4000D, the control panel is graced with classic knobs, toggle switches, and lovely backlit labeling, plus two-color LCD screens. The back panel shows that the Mini has most of the connectivity found in the larger M4000D, but no XLR audio ouputs. MIDI is handled by five-pin in/out/thru ports, but there's no USB connectivity. Now that's old-school!

Sounds

Like the M4000D, the Mini comes loaded with 100 sounds, drawn from various Mellotron and Chamberlin instrument models. It's bi-timbral, and there are always two active sound slots, A and B, with sounds loaded and ready to play. Each slot has its own screen, displaying a graphic of the particular model whose library the sound originated. You can use the Mix knob to blend the sounds in slots A and B. Press the Select B knob for a convenient list view of the presets, and press it again to enter a custom playlist mode to assign and access your favorite sounds. The presets include Melltron classics like strings, woodwinds, vibraphone, brass, mandolin, and other keyboards and percussion. Our review unit came with an expansion sound card that adds 100 more sounds (available separately for $500). The card is called "Sound Card 02", as "Sound Card 01" refers to the preset sounds permanently installed in each unit. The card contains many of the fun "auto-accompaniment" sounds from the classic libraries (old-timey foxtrot and cha-cha, anyone?), as well as some newly-released master tapes, containing vintage libraries custom-recorded for artists such as Yes, Roxy Music, Genesis, Jack Bruce, and Tangerine Dream (there are also some sounds labeled as "BSabbath," though I couldn't help but notice that the full name of the band is left out of all printed materials). No matter, because these libraries are remarkably cool. Some sounds are quite specific (I detected some "samples" of exceprts from *Fish Out of Water*, the rare solo album by Chris Squire of Yes), and if you're a fan of the aforementioned artists, it's a rewarding experience to get an insight to the experimental spirit and creativity that they employed with what was cutting-edge technology years ago. Many of these sounds have also been made available for Nord instruments, but only the M4000D and Mini have them at full 24-bit uncompressed audio fidelity.

Under the hood, the Mini functions nearly the same as the M4000D; these sounds are faithfully recorded with one sample per key, and, like the original, each has a duration of about eight seconds with no looping. The sounds remain sustained if you change presets while holding down a key, which is great for live performance. You can choose to have some amount of velocity sensitivity to volume, but there is no aftertouch to lean on here. A horizontal toggle switch in the middle of the panel drops the sound an octave lower when you shift from "high" to "low." Another nifty feature is that you can choose subtle EQ characters for the instrument globally: opt for a cleaner, clearer output ("Chamberlin M1") or a slightly muted vintage character with "Worn Tapes" (Mellotron M400). One aspect that was unexpected is the nature in which the Mini and 4000D deal with the sounds on the Memory Card. Unlike other synthesizers that show expansion sounds in their own banks, the Mini treats the sounds on the card like they're a part of the overall bank. You can organize the sounds alphabetically or by category, but it's not apparent which sounds are on the card and which reside in internal memory. So take note.

Audio and MIDI

The rear panel sports three 1/4"line-level audio outputs: A, B, and Master. Note that while the samples are monaural, you have the ability to assign each of the two live sound layers to either "A" or "B" output, should you desire to process or mix the sounds separately. The "Master" is the main mono output that will reflect the balance of the two tones you set from the front panel. There's a stereo 1/4" headphone jack, inputs for sustain and 2 expression pedals, and the aforementioned MIDI in/out/thru ports. Like the M4000D, there are some quirks. For instance, the volume pedal jack is meant for an *audio* volume pedal such as an Ernie Ball Jr.—you'd plug the TRS end of a send-and-return Y cable into it, then either end of the Y into the pedal's input and output, respectively. However, the "Expr. 1" jack can control the A/B tone mix or the pitch using a standard MIDI expression pedal. Both can accept switch pedals to increment or decrement through a playlist (pairs of sounds you can choose for quick access), *if* you modify the pedal by rewiring it to a TRS plug. Soldering? Now that's really vintage.

Conclusions

Having previously worked with the M4000D and a vintage M400, I maintain that one of the special aspects of the instruments is inspiration; there's something about the combination of sounds that evokes realism—call it recordings of real people playing instruments expressively—while the mechanical limitations cause unexpected effects that give it a signature charm. The M4000D and Mini surely come as close as one can get to the vintage treasure, and in many ways add much-needed conveniences like portability, low maintenance, and instant access to up to 200 classic sounds (and live layering of any two).

Even at the lower price point than it's big brother, the M4000D Mini is still a $2,000 boutique instrument. There are lower-cost sample-playback instruments that have user memory, more keys, effects, and modern keyboard-player features. One could also look at a Nord Electro, which has a large free library of official Mellotron sounds (reportedly using lossless compression),

On the rear panel you'll find audio I/O, controller inputs, the expansion card slot, and full MIDI I/O.

SOUND EXPANSIONS

The Mellotron company has always worked as a sound library developer, because the user had to send in any sounds that he or she wanted to use in the Mellotron. This was one of the main reasons why they became so devoted to acquiring and preserving *all* of the Mellotron master tapes, starting around 1990. The tapes had been spread all over the world, and it remains an ongoing task to preseve them and convert them to digital format. The original recordings are on different formats, most on full or two-track 1/4″ tape, some on 16-track 2″ tape. Therefore there's a a vast library of custom recordings. Some of the original recordings were included on the first expansion card, and you can find a full list of sounds on the company's homepage.

It works the same way in the digital realm, because Mellotron uses a proprietary file format to ensure the highest possible audio quality. Artists like Rami Jaffee of the Foo Fighters and Patrick Sansone of Wilco have provided custom recordings in recent years. With their permission, some of their sounds are included on the first expansion card, Sound Card 02 (Sound Card 01 is built into the M4000D and M4000D Mini). One of the accordion drone sounds in one of Rami Jaffee's sounds was recorded by Nirvana bassist Krist Novoselic.

plus highly-rated organ and piano sounds, and hovers in the similar price range. However, there is something direct and elegant about a dedicated instrument like the M4000D Mini. For those with a passion for classic sounds and classic styling, the Mini will not disappoint. ♪

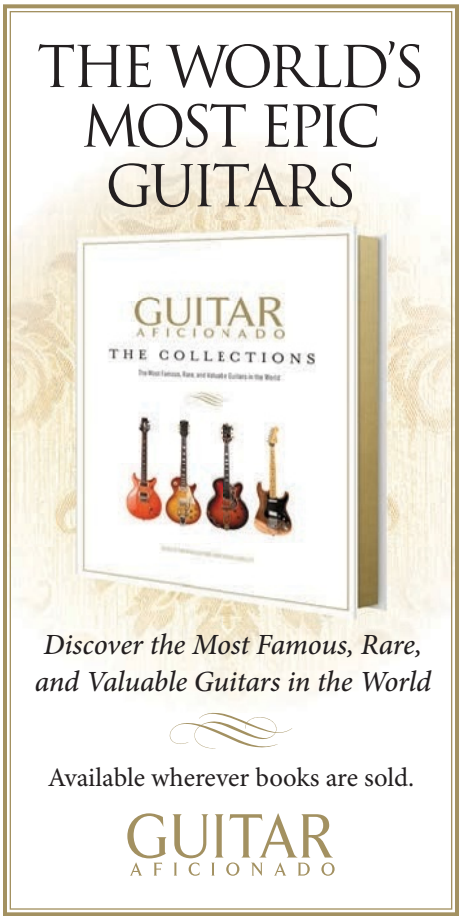
Bottom Line

The Mellotron experience now comes with a lower barrier to entry in the form of the M4000D Mini, the most affordable and digital instrument to capture the throwback glory of it's tape-based ancestors.

M4000D Mini: $1,999 street | Expansion card: $500
mellotron.com

First look at the Mellotron M4000D mini.

keyboardmag.com/march2015



Keyboard K KEYBUY AWARD

ARTURIA

Matrix-12 V

BY FRANCIS PRÈVE

IN MANY WAYS, THE OBERHEIM MATRIX-12 WAS THE LAST GREAT ANALOG mega-synth of the '80s. At the time of its release, digital synths from the Yamaha DX7 to the Ensoniq Mirage sampler were dominating the market, while digitally controlled oscillators and wavetable synthesis were gradually making their way into subtractive-based hardware such as the Korg DW series. Keyboardists everywhere thought that analog was passé and digital was the only way forward, so despite its astonishing depth, the Matrix was underrated during what should've been its heyday. It's a travesty of the highest order that this synth isn't as legendary as its forebears, as it handily eclipses its vintage competition, especially today. As with all of Arturia's vintage emulations, the Matrix-12 V's feature set is an exact replica of the original, so let's take a closer look.

Architecture

The Matrix-12 was released in 1985 and is based on the original Oberheim Xpander, a keyboardless sound module that arrived on the scene the previous year. In terms of synthesis, it's identical to the Xpander but with 12 voices instead of the Xpander's six. There were a few other minor differences, mostly related to its expanded multitimbral features and added keyboard, but that's about it.

As with the majority of high-end analog synths from this era, the Matrix-12 was configured in classic analog style, with two voltage-controlled oscillators feeding an incredibly sophisticated filter followed by two VCAs. The engine also included analog FM and noise modulation, but the real

Snap Judgment

PROS Fastidious re-creation of the Matrix-12's complex architecture. Fifteen different resonant filter modes. Massive array of modulation options. Multi mode offers comprehensive voicing, routing and blending opportunities. Unique approach to analog effect processors.

CONS Very CPU-hungry, even when no notes are active.

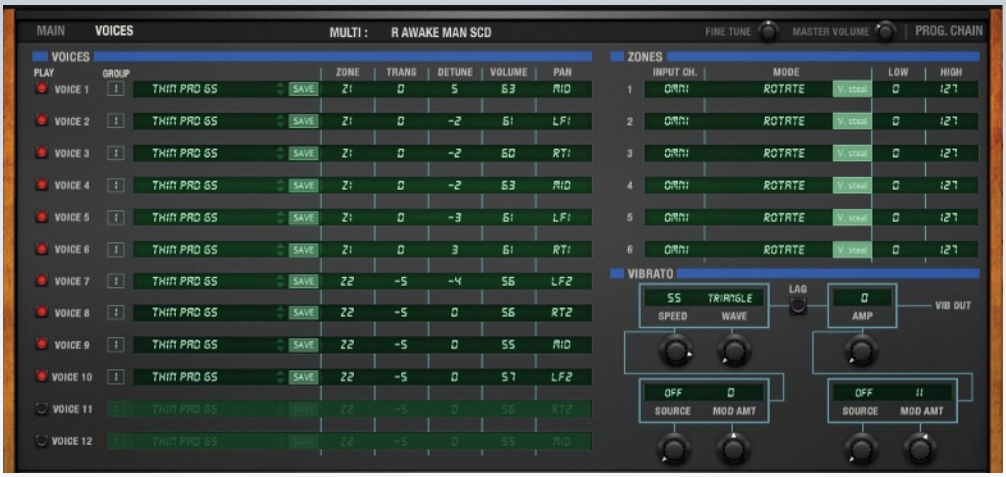


Fig. 1. The Matrix-12 V's comprehensive Voice Page delivers a slew of multitimbral splitting and layering features.

showstopper was its absolutely massive complement of modulation resources and destinations, which actually were *not* analog, but digital implementations of envelopes, LFOs, and several more exotic tools that were previously the exclusive realm of modular behemoths. In fact, it could be argued that the whole modern concept of "matrix modulation" is a direct result of the Matrix (and Xpander), which is why this synth and its sound are such important parts of our history.

Oscillators. The Matrix's dual oscillators were slightly different from the usual fare and included a few features that helped define its distinctive sound. For starters, the three waveforms—saw, triangle and variable-width pulse—could be selected simultaneously, giving them more sonic range than the competition at the time. Oscillator 2 also included a noise generator in addition to its waveforms.

Additionally, oscillator 2 provided analog frequency modulation (FM), which could be used for audio-rate modulation of either oscillator 1 or the filter cutoff. I've always had a soft spot for analog-based FM effects, as they sound nothing like the FM we've grown accustomed to since the Yamaha DX7. Analog FM is nasty, messy, and a great resource for generating grungy sidebands. Interestingly, the Matrix-12 V's implementation disregards the waveform selection of oscillator 2, so it's unclear as to what wave is modulating the destination. To my ears, it sounds rather like a square wave. Since I use analog FM a lot, I'm pretty familiar with this territory—and the fact that FM is available, even if all of oscillator 2's waveforms are turned *off*—makes me think there's a little artistic license going on here.

Filter. Oberheim synths have always been praised for their filters. The SEM included state-variable filters that could be swept smoothly from lowpass to notch to highpass. The Xpander and Matrix-12 continued this legacy in a slightly different manner, with 15 discrete filter modes that cover an astonishing amount of ground for that era. Even modern analog synths don't have the scope of the Xpander/Matrix filters, which is why the original units are so coveted by connoisseurs.

The filter modes are as follows: one, two, three, and four-pole lowpass (with self-oscillating resonance in four-pole mode); one, two, and three-pole highpass; two and four-pole bandpass; two-pole notch; three-pole phase shifting (which sounds fantastic on pads and strings); and four hybrid modes that combine the previous options in clever ways, with three-pole phase plus single-pole lowpass being my favorite here.

Since all of the modes are resonant and can include FM modulation from oscillator 2, the filtering possibilities on the Matrix-12 are staggering. One of the factory presets, "2001," was my go-to choir patch back when I had the Xpander, thanks to the airy, textured sound of the phase-plus-lowpass option.

At the end of the filter section is a pair of VCAs in series. Why two? So that each can be modulated by different sources. In most presets the second VCA defaults to envelope 2, so the first VCA can be used for things like tremolo or pulsing effects via sawtooth or square waves.

Modulation Matrix. Prior to the Xpander and Matrix-12, modulation in analog synths followed a familiar topology: dual envelopes, one or two LFOs, keyboard tracking on the filter, and after 1983, basic MIDI. But that was it. The Xpander turned everything on its ear by including five envelopes, five LFOs, four ramp generators, three tracking generators, and a lag processor—and allowed users to route those resources to almost every significant synth parameter. Up until that point, this level of complexity was the exclusive province of modular synths, so Oberheim packing them into a slab keyboard quickly put them at the front of the pack.

The secret to the Matrix-12's flexibility was the fact that Oberheim was the first company to move all of these components, including routing, into the digital realm. That is, each of these modulation resources was entirely virtual, running on what was an advanced microprocessor at the time.

Envelopes. Each of the five envelopes is a DADSR affair with an overall amplitude control that allows for scaling the entire envelope's range (this is great for velocity effects, incidentally). The bonus here is that each segment includes a modulation input, so if you want to control the decay time via MIDI controllers or get freaky by applying LFOs to every segment, that's available. You can even create half-hour long (!) envelopes by setting all of their segments to maximum, then modulating each with a tracking generator set to maximum.

Digging into the secondary envelope functions, there are options for retriggering the envelopes or letting them free-run, as well as an array of external triggering modes that allow for things like tying the envelope triggers to an LFO for rhythmic repeating effects, which was a big deal back in the day.

LFOs. The five LFOs include the standard complement of classic waveforms—saw, square, triangle, and random—along with two unusual additions: noise and sample. Noise will modulate its destination with pure white noise, which in the case of oscillator pitch or filter cutoff will result in a gritty, distortion-like effect at extreme settings. Used with restraint on a destination like pitch, noise modulation will impart airiness, which is one of the primary reasons that the "2001" choir sounds so credible, despite its analog roots.

The LFO's sample "waveform" is actually a true sample-and-hold function, with the source to be sampled being selected within the LFO itself. For example, if you want to grab the output values from one of the other LFOs, you can instantly set at a different rate and waveform in Matrix-12 V.

There's also a continuously variable "Retrig" parameter on each LFO that really should be named "phase," as it changes the start point of a given LFO's waveform based on its retriggering settings, which are controlled from its secondary set of "Page 2" parameters.

Ramp generators. The four ramp generators are straightforward once you understand their purpose. Each serves as a single-segment envelope that can modulate another parameter. If the ramp is set to a positive modulation value, the result will be a long attack, which is useful for having an LFO slowly fade in as a note as held.

Negative values work in a manner akin to a decay segment, which is great for having a burst of modulation at the beginning of a note that fades to zero. The Page 2 parameters here give access to retriggering functions, including the ability to lock the triggers to one of the LFOs.

Tracking generators. Back when I had my Xpander, the most confusing components of the matrix modulation were the five-point tracking generators. Now that I'm older and wiser, these are among the Matrix-12's coolest features. In essence, a tracking generator allows you to map (or remap) the output of a modulation source so that its values no longer retain their original shape or linearity.

Applied to say, keyboard tracking, a tracking generator will let you rescale the keyboard tracking such that (for example) ascending the keyboard no longer scales the relevant parameter in a linear fashion. Instead you can create effects like having the filter cutoff at maximum at the opposite ends of the keyboard, while the cutoff at the center of the keyboard is more moderate, which allows for some nifty pseudo-splitting tricks.

Another great use for tracking generators is to reshape the output of an LFO waveform. For example, if you use a slowly rising sawtooth as the input for a tracking generator, then reconfigure the values for each of the five points, you can create entirely new LFO wave shapes, which can be extremely cool for swooping, modern electro bass lines.

Lag processor. The final modulation tool in the Matrix-12's extraordinary bag of tricks is its Lag Processor, which causes any modulator's values to slide smoothly between two points. Most keyboardists are already familiar with lag thanks to its more common use: portamento. By assigning the keyboard as the lag generator's input, switching between notes causes them to, er, lag rather than immediately transition to the next note. On a Matrix-12, this is how you create classic glide effects.

There are quite a few other uses for lag generators besides glide. You can apply them to sharply shifting LFOs like square or random waves so that the instant jumps in value slide around. Again, this is cool for dance music production where wobbles and sweeps are in effect, but on a retro tip, it's also great for recreating R2D2's burbling voice.

Multi Mode

In addition to all of these synthesis features, Matrix-12 V also includes a remarkable Multi mode, which allows you to split, layer and play other cool tricks with the instrument's 12 voices (see Figure 1). Back in the day, it was also used for MIDI multi-timbrality, and while that feature is still in the software for those who are using the Matrix in a laptop-based stage rig, the real power lies in the layering and voice allocation, which are stellar. There are six zones, each of which is governed by a set of six voice assignment modes: rotate, reassign, reset, uni-high, uni-low, and uni-last.

The first three of these are ideal for polyphonic applications. "Rotate" assigns each new note to the next voice in successive order, so if you have four different presets assigned to the same zone, each new key you hit will be assigned to the next available voice, giving that patch a constantly changing character since different presets are constantly being assigned sequentially to the various notes in your melody or chords. This sounds kaleidoscopic on sequences and arpeggios, by the way—instant hocketing.

"Reassign" will assign specific voices to the same note. So if you play *C* over and over, the same voice and preset will play that *C*; add an *E* and that note will get a new voice—and if you have multiple presets assigned, a new patch as well. "Reset" co-opts the scheme from the Oberheim Four-Voice, with each successive note getting voices in ascending order.

The unison features are simpler. Each mode stacks all of the voices in a zone to a single note, with the three modes determining whether the priority goes to the highest, lowest, or last note played.

What makes this all the more powerful is that each voice has its own controls for transposition, detuning, volume, and panning, so it's possible to stick six different presets on a single unison zone, then use these features for everything from massive stereo leads to modern techno one-note chords.

In addition to the blending and tuning features, each zone has its own keyboard range, so you can do extremely complex combined splits and layers, each with its own voice assignment settings to boot. Again, the Matrix-12 V was designed to be a player's synth, so it's no surprise that these performance tools are baked in.

Effects

Since this is a soft synth, Arturia has included a pair of effect processors in series on the master stereo outputs of the Matrix-12 V. That is, these effects cannot be applied to individual voices within a Multi framework. Considering the rest of this synth's power, this detail didn't bother me, but it's worth mentioning in this context.

The six effects are delay, phaser, analog delay, flanger, analog chorus, and reverb. It's notable that *all* six effects have a decidedly warm, organic flavor, but the analog chorus and delay are noteworthy in a few ways. This delay incorporates an LFO in an unusual manner in that the delay time governs the echo rate and the LFO is applied to each repeat discretely, as opposed to smoothly modulating the delay time, like a proper analog delay with LFO. In the big picture, this isn't a drawback per se, as it gives the effect a really unique sound.

The analog chorus includes three modes and a few unusual stereo controls, which when set properly are rather good at recreating the sound of classic string ensemble synths. All in all, these added "analog" tools are cool and make the already amazing Matrix sound even more eclectic.

Conclusions

After spending a lot of time with Matrix-12 V, I was extremely impressed with how closely it resembles the original, which is exemplified by the fact that many of the factory patches are absolutely spot-on (though several also didn't quite hit the mark; notably the original "S. Geneviv" patch was smoother with less pronounced vibrato).

Quibbles aside, the overall experience is so much like having a real Matrix-12 that I found myself feeling a tad emotional as I re-experienced a sound and texture that was integral to the first decade of my musical career. When you live with a synth for that long, its sound becomes as distinctive as the taste of grandma's cooking or the smell of your first sweetheart's cologne. While there's a certain visceral "presence" that can only be found in a real Matrix-12 or Xpander, the essence of those extremely sophisticated synths is captured here with authority and pride.

The only real consideration is that Matrix-12 V is extremely thirsty for CPU in its current version. Even the basic vanilla voice template consumes 30 percent of my MacBook Pro's resources at rest, with no voices playing and both effects turned off—and I have a 2.2GHz quad-core Intel i7 and am running a 512-sample buffer at 44.1kHz. Perhaps this will be optimized in the future, but it's something to be aware of if you're on anything but a heavy-duty computer rig.

All in all, Arturia Matrix-12 V is a thoroughly impressive achievement—and it's about $7,000 less than an original on eBay. Whether you've coveted this synth or just wondered how it sounds, Matrix-12 V is an essential addition to any software-based synth rig. There's nothing else like it in the synthesis world, and it wins our Key Buy award on grounds of technological excellence and outstanding value. ♫

Bottom Line

The first definitive and authentic emulation of Oberheim's monster Matrix-12 analog synth.

$189 list | $169 street
arturia.com

AKAI PROFESSIONAL

Rhythm Wolf

BY FRANCIS PRÈVE

Snap Judgment

PROS Five fully analog drum parts with adjustable parameters. Integrated bass synth. Flexible pattern sequencer. Six MPC-style pads. Built like a tank.

CONS Bass synth is out of tune. Hi-hat tune parameter doesn't do much.

AS THE PROUD OWNER OF A FEW OF THE MOST DICEY VINTAGE ANALOG DRUM machines (including the Mattel Synsonics and Boss Dr. Rhythm), I can honestly say that I'm a big fan of gear that has real character. I want to be up front about this because there's been a lot of Internet chatter about Akai's new Rhythm Wolf analog groovebox. Whereas some products are instant hits out of the gate, others inspire passionate debate, with some users falling in love and others feeling buyer's remorse. The Rhythm Wolf is a love-it-or-hate-it box with a lot of really cool features and a sound all its own—and that alone is reason to give it a closer look.

Overview

From a hardware standpoint, the Rhythm Wolf is impressively constructed. Its 24 knobs and real wood end caps give it a decidedly vintage feel, while the all-metal chassis inspires confidence from a touring perspective. It really feels like it could take a beating on the road.

Under the hood, the Wolf includes five drum sounds and a simple bass synth. Since the engine is fully analog, the knobs are old-school potentiometers and can't store presets or receive MIDI. Since a lot of modern analog gear operates in this

The Rhythm Wolf's back panel includes a monaural main output, a separate out for the bass synth, five-pin and USB MIDI, and gate in and out for interfacing with other analog gear.

manner—notably Arturia's popular Brute synths and Korg's MS-20 Mini—I didn't really think of this as a flaw, just something to be aware of.

Each drum has its own set of parameters, so let's look at those individually.

Kick. The Rhythm Wolf's kick includes parameters for tuning, attack, and decay, and has a lot of sonic range. Tuned high with a short decay, it nails that tiny Roland CompuRhythm sound. Tuned low with a long decay and a lot of attack click and it definitely veers into TR-808 territory.

Snare. The Wolf's snare is comprised of two sine-like tones and a noise generator. The tune knob changes the balance between the high and low tones, while its noise parameter governs the volume of the noise, so if you want to use it as a quirky tom you can just turn the noise to zero. The decay knob controls the decay of the noise only. With a lot of noise and a short decay, you can conjure up vintage Korg and Roland snares. Long decays give a straight-up unfiltered noise sound that reminded me a lot of my Mattel Synsonics. At that extreme it's cheesy, to be sure, but has its applications in indie and experimental tracks.

Percussion. Like the snare, this instrument consists of two tunable sine-like tone generators (both with a quick decay) and a noise generator that adds a gated burst of white noise to the sound. Each tone generator includes a tune knob, but no volume parameter, so both are always present and mixed. The noise mix parameter simply controls the level of the noise burst. With noise off, the end result sounds a bit like a CR-78 conga mixed with a touch of clave. Add the noise and you're back in Synsonics territory. That said, it would've been cool to have the noise knob work as a balance control between the two types of sources.

Hi-hats. The Wolf's hi-hat section includes two knobs that affect both open and closed hats equally: tune and decay. The primary sound of these hats is reminiscent of the TR-808 and Korg Volca Beats, with that grainy metallic noise character—which would be awesome if the tuning and decay knobs were properly calibrated. As is, the tune knob's effect is barely perceptible at either extreme and the decay knob makes the closed hat far too long when setting the open hat to a standard decay time. I found myself just leaving them both with a short decay and using the subtle differences as a means of adding accents to their patterns.

What's really interesting about the range of drum sounds here—and I haven't seen any other reviewers mention this—is that each drum sounds radically different at low and high velocities. In this month's Rhythm Wolf online loop six-pack, I recorded each eight-bar groove with the first four bars at low velocity and the second four at maximum velocity. The results were extreme enough to made me think that a lot of users might miss this fact when approaching the device casually, so be sure to give those loops a listen.

Bass Synth

Structurally, the Wolf's bass synthesizer strongly resembles a TB-303 with selectable saw or square, filter cutoff, resonance, envelope amount and decay parameters in place. While it doesn't have the beef of a real 303, it's capable of some decent synth riffs that are evocative of the acid house scene. That said, its got two serious issues that could be deal-breakers for some users. The first issue is that boosting the resonance to maximum lowers the synth's overall volume considerably, so the closer you get to the 303 squelch, the quieter it gets. The second issue is more grave—and I'm not the only reviewer who's noticed this: It's simply not in tune. I tested this via MIDI and played a pattern of octaves using *C*. It's not a just a little off; it's downright microtonal.

Distortion

In addition to the synth and drums, there's a global distortion—the "Howl" knob—that's applied to the entire mix. Tiny amounts add a bit of grit while extreme settings deliver filthy industrial-sounding results. It also adds considerable noise to the signal, which frankly a lot of vintage guitar pedals do as well, so there's that. If it were my design, I'd have added a subtle noise gate to the output, like on quite a few classic instruments, but hey, you can do that in your DAW if you're really concerned about it.

The Rhythm Wolf also includes a rather capable Roland-style sequencer that works in conjunction with the MPC pads, as well. While it only has 16 patterns, there are clever tools for live performance, like being able to use the pads for muting and soloing sounds, as well as nifty fill button. It also sends out MIDI information if you want to trigger other gear. Getting around on the sequencer was a painless process and even novice users should be able to master it within an hour or so.

Conclusions

While some of the above assessments may make this product seem more like a sheep than a wolf, I have to say that I actually really like the Rhythm Wolf as a bizarre and flavorful drum machine. If you're looking for a dance floor-ready groovebox, you should probably go for a Roland TR-8 or Korg Electribe. But if you're the kind of artist who surfs eBay looking for deals on apocrypha like the Mattel Synsonics (which incidentally, was used by Kraftwerk) or obscure classics like the Boss DR-55 or Korg KPR-77 (both of which appeared on countless '80s new wave hits), then the Rhythm Wolf could be your new best friend. ♫

Bottom Line

A quirky analog groove box with loads of character.

$299 list | $199 street
akaipro.com

SOUNDCLOUD

Downloadable Rhythm Wolf loop six-pack!

keyboardmag.com/march2015

IK MULTIMEDIA

SampleTank 3

BY JOHN KROGH

Snap Judgment

PROS Solid bread-and-butter sound set. Quick sample load times. Simple interface. Great-sounding effects derived from AmpliTube and T-Racks.

CONS Some instruments don't have all the realism they could. Sound design and programming is basic by today's standards.

IK MULTIMEDIA ORIGINALLY RELEASED SAMPLETANK IN 2001. IT QUICKLY became a popular choice among music producers and keyboard players who were jumping onboard with using computers to replace hardware synths on stage and in the studio.

Since that time, a number of competing products have entered the market, and technology has marched on. Accordingly, IK has updated SampleTank to keep pace with current computer hardware and software trends. Now at version 3, SampleTank offers some compelling new features for existing users and adds a whopping 25GB of sample content, expanding the total footprint to 33GB. The question is: Does this new version represent more than simply maintaining status quo with the competition?

Overview

Conceptually, SampleTank 3 (ST3 here after) is essentially a 16-part multitimbral sample-based software instrument intended to provide the same breadth of sounds offered by hardware synth workstations and "ROMplers." As such, its sounds are organized into 21 category folders such as Organ, Electric Piano, Acoustic Guitar, and so on, making it easy to drill down to find the kinds of sounds you're after. You can also use search terms, which is helpful considering that ST3 includes over 4,000 instrument sounds and more than 2,500 audio loops.

Fig. 1. SampleTank 3's Mix page with the FX panel displayed along the bottom.

Fig. 2. The Edit page is where you'll find all of the synthesis parameters for tweaking sounds.

ST3 now runs as a 64-bit app, either in stand-alone mode or as a plug-in, which means you'll be able to load more than 2GB of samples into the software (a limitation of the previous version). Functionally, this is a big deal as there are now many more RAM-hungry instruments on hand, including some nice acoustic grand and upright pianos.

IK has made other big improvements with version 3, most notably with the user interface, which has been streamlined and simplified. Whereas the previous user interface felt cramped and cluttered, ST3 is clean and laid out in a very user-friendly way. Many functions have now been spread across three main tabs: Play, Mix, and Edit.

From the Play window you can browse and load instruments, organize them into multi (*i.e.*, "stacked") and multitimbral setups with sounds assigned to unique MIDI channels, adjust volume and pan settings, and more. Clicking the Info button (only available in the Play window) will switch the multi view to a single-instrument view that provides details about the currently selected sound, including info about the source sample material and the macro control assignments.

The Mix page looks and operates much like the mixer you'd find in any DAW. Each instrument/part is given its own channel strip, complete with five insert and four send effects, plus a master bus that also features five inserts. What about effects? There are 55 built in, many of which have been brought over from IK's excellent AmpliTube guitar amp modeling and T-Racks mastering software. The quality is top-notch, adding polish and punch to many of the instruments.

Along the bottom of every window is a panel that can be toggled between the Macro assignments and Effects tabs. When you click on the any of the effects from the Mix window, the selected effect is automatically shown in the effects tab, which makes it easy to jump from effect to effect, making mix tweaks as you go.

Sounds

Preset sounds are called Instruments, and they come in three varieties. There are "standard" instruments, such as organs, synth pads, and pianos, which are based on single multisamples. Then there are "multi-articulation" instruments that allow you to switch among different articulations using the modulation wheel, key-switching, or velocity switching. Lastly, there are looped instruments (audio loops, really), which I won't spend much time on other than to say there are some fantastic acoustic drum grooves that I could imagine kick-starting new tracks.

Most of the instruments are of the "standard" variety, with a wealth of gig-ready and go-to sounds such as Hammond B-3, Rhodes, Wurly, and acoustic pianos, along with a nice selection of synth pads and orchestral strings that, while not perhaps up to par with dedicated orchestral libraries, would work very nicely either layered with other sounds or on their own, depending on the setting.

I spent a lot of time auditioning each category, and to my ears ST3's strength seems to be in the quality and variety of bread-and-butter sounds that are on offer. In addition to the musically useful collection of keys mentioned above, there's a lot of solid material to be mined. Everything from dynamic acoustic drum kits, tuned percussion and synth basses, to punchy pop brass, delicate acoustic and convincing electric guitars (made ever more impressive thanks to judicious use of AmpliTube amp simulations). I encourage you to check out IK's site where you'll find a list all of the factory presets along with audio demos of many of them.

Conclusions

For existing users there are several upgrade paths that make the point of entry to ST3 very affordable, and if you have older projects that use SampleTank sounds and you'd like to carry those forward with a DAW and/or computer that's been updated to 64-bit operation, purchasing ST3 is probably a no-brainer. That said, there are a lot of choices for high-quality software instrument in the $300 to $400 range, including many third-party library options available for NI's Kontakt and even full-fledged DAWs that come with plenty of great-sounding instruments (*e.g.*, Logic Pro X and Reason).

From this point of view, ST3 seems somewhat behind the curve compared to the competition. In particular, the sound design is rather "safe." There are no multi-stage envelopes or arpeggiators, for example, and as a result there aren't many rhythmic, pulsating synths (though there are MIDI patterns that can be applied, but these aren't an equivalent replacement).

And while there might be release samples included with some of the instruments, I couldn't detect them in the context of the acoustic or electric pianos. We've come to expect all the noise "in between the notes" to add a level of realism with sampled instruments. Related to realism, we've also come to expect the use of many velocity-switched layers, but in this regard ST3's instruments seemed not to be too deep.

Ultimately, however, SampleTank 3 is a successful step forward from the previous version. It's certainly a worthy upgrade for existing users. Thanks to its dead-easy interface, well-rounded library of sounds and killer effects, ST3 is a good choice for those who prefer simple setups onstage or in the studio, or for those who'd prefer a one-stop shop over investing in various third-party libraries for a software sampler. ♫

Bottom Line

No frills or hype, just a well-rounded library of sounds for the stage or studio.

$399 list | $349 street | $199 upgrade from SampleTank 2XL
ikmultimedia.com

First look at SampleTank 3's new features and interface.
keyboardmag.com/march2015

NEO INSTRUMENTS

Ventilator II

BY JIM ALFREDSON

Snap Judgment

PROS Incredibly authentic rotary speaker emulation. Lots of control over the sound. Built like a tank. Stereo inputs make use with modern clone-wheel organs easy.

CONS No presets. No MIDI control. Pricey.

WHEN NEO INSTRUMENTS RELEASED THE VENTILATOR IN 2010, IT QUICKLY became the standard for all other rotary speaker emulations. With easy access to five real-time controls, bulletproof construction, fantastic overdrive, and extremely authentic dual-rotor emulation, the Ventilator became the go-to effect for keyboardists who wanted to upgrade beyond the sound of their drawbar organ clones' built-in rotary simulations without carrying a real Leslie. After a long wait, the Ventilator II is finally here. The footprint is similar, the look is sleeker, and the construction is still bulletproof. The five real-time controls are still there, but all have a second-function mode. Is it worth adding to your rig? Read on . . .

Overview

Neo Instruments added much more control over the sound with the Ventilator II. Whereas the original was meant to be a faithful recreation of the classic Leslie 122 speaker, the Ventilator II provides all that plus the ability to create your own sound.

As mentioned, the five recessed knobs now each serve two functions. In the default mode, the knobs control the parameters labeled in yellow (more maize, actually) directly beneath each knob. The knobs' secondary functions are accessed by pressing the Bypass and Slow/Fast switches simultaneously. When in the second function mode, the Lo/Hi LEDs will blink together two times per second. Now, the knobs control the parameters in white. Let's detail all those parameters now.

The Knobs

Like on the original, the knobs have a very sturdy, high-quality feel. The steel case is designed to protect them from sheering and the silk-screened lettering offers readability in low light.

The functions are mostly self-explanatory, *e.g.*, Knob 1 controls the base rate of the fast rotor speed in primary mode and slow speed in secondary mode. Although the sound is processed independently for both virtual rotors, this control af-

Around back on the Ventilator II, you'll find a switch for low- or high-impedance input, stereo inputs (yes!), stereo outputs, the remote input, and the 12VDC power connector. It ships with a universal wall-wart style power supply that can provide power in any world region.

fects both at once, as though you were adjusting the speed of both sets of motors in a real Leslie. It would be better still to have independent controls for the bass and treble rotors, but the overall sound is so good that this is a quibble.

As for Knob 2's dual functions, Balance is the mix between the two virtual rotors. As on a real Leslie, the bass rotor reproduces frequencies under 800Hz; the treble, frequencies above. Acceleration controls the time it takes for the virtual rotors to spin up to fast speed or spin down to slow speed.

Knob 3 is a favorite of mine. In primary mode it controls the Drive, one of the defining characteristics of the Ventilator emulation. The Ventilator overdrive is creamy and rich and sounds remarkably close to the real tube amp of a Leslie 122 being driven hard. The secondary function selects modes with regard to frequency response and cabinet emulation.

Mode 1, with the knob set all the way counter-clockwise) is "Git1," which represents the guitar mode on the original Ventilator. This disables the speaker cabinet emulation and is useful for guitarists who want to maintain the sound of their own amp/speaker combo while still enjoying the rotor simulation. Mode 2, with the knob at 12 o'clock, is "Git2" from the Mini Vent. This is a more distant, mellower sound, and like "Git1" it disables the cabinet emulation. Mode 3, with the knob all the way clockwise is the "Key" mode for keyboardists as on the original Ventilator, and includes the cabinet simulation.

Knob 4's primary function, Mix/Dist Lo, controls the mix of the lower rotor in the signal as well as the distance of the virtual mic from the rotor. The first half of the travel (from all the way counter-clockwise to center) determines the mix. At all the way counter-clockwise there's no lower rotor simulation in the mix. Note this does not remove the bass content from the signal; it simply removes the rotary effect. You can use this to emulate the "Memphis style" Leslie sound, wherein players preferred less bass animation and unplugged the motors on the lower rotor. From center to all the way clockwise, the knob adjusts the distance of the virtual mic from the lower rotor.

The secondary function of Knob 4 determines how the Remote input jack operates and is explained in depth in the manual. In short, it lets you use different types of pedals to switch speeds, including an expression pedal (such as a Yamaha FC7) to ramp the speed up or down continuously.

Knob 5's Mix/Dist Hi function controls the mix of the upper rotor in the signal as well as the distance of the virtual mics from that rotor. Its secondary function adjusts the output level from the Ventilator.

As to the main stomp-switches, Bypass engages a true relay-controlled bypass of the Ventilator II's circuitry. Engage the Stop button, and the virtual rotors consistently spin down to "face" the virtual mics—nice!

The Sound

The Ventilator II's pedigree is unmistakable. The rotary simulation is still king of the hill in my opinion—though it should be noted that both I and *Keyboard* have yet to test Hammond's new Digital Leslie Pedal and the GSi Burn from Italy. With a bit of room reverb you can certainly fool listeners into believing a Leslie 122 is in the room. The overdrive is fantastic and the sense of three-dimensional realism is unparalleled.

Since reviewing the original Ventilator in 2010, I rely on it more and more while on the road. When I perform with my band Organissimo or any other setting where I'm kicking bass, I prefer to have a real Leslie with me. But for gigs with bassists or at festivals or other large venues, the Ventilator is my go-to. Especially for rock or blues gigs where you need a lot of volume and you're going through the front-of-house P.A. anyway. I always have my Ventilator with me on the road just in case, as I never know what the backline will be from one gig to the next.

The increased adjustability is a blessing. I can get the Memphis sound with ease. I can achieve sounds that no older Leslie can do via the continuously variable speed control. Even with these added parameters, though, programming the Ventilator II is immediate and easy. There's no menu diving and no tiny screens to decipher—but I might accept some of this if it meant I could store presets for different rotary profiles.

Last but not least, the stereo inputs let you use the same keyboard for organ and non-organ sounds, without sacrificing stereo feed to the house P.A.

Conclusions

Neo Instruments took longer than expected to release the Ventilator II, but the level of thought and the quality of the design gives insight as to why. I can't really think of anything they missed. For guitarists and keyboardists alike, the control and flexibility is several steps above the original—and the sound quality is an audible upgrade from the built-in simulations in even today's better clonewheel organs. MIDI control would be nice for use in a studio, but would increase the complexity of the interface—and for my money the immediacy of the Ventilator II is one of its most valuable features. ♫

Bottom Line

The Bentley of rotary simulators gets enough new features to make it as practical as a Prius.

$649 list | $499 street
neo-instruments.de

PRIMAL AUDIO FM4

BY FRANCIS PRÈVE

OVER THE YEARS, I'VE OWNED COUNTLESS HARDWARE SYNTHS, BOTH ANALOG and digital. There are a few that I just had to keep because they're utterly unique. One of those is a Yamaha TX81Z. For many synth aficionados, the 81Z was a bit of a trifle, even in its day. As Yamaha's FM synths go, it only had four operators, basic envelopes, and crunchy digital-to-analog converters with more than a whisper of noise. But it was also one of the most popular synths of the early house and rave scenes. In fact, its "Lately Bass" preset was a cousin of the DX100's "Solid Bass" patch, which anchored countless tracks, notably Orbital's "Halcyon and On."

So when Primal Audio's new FM4 came out, I immediately purchased it to see how close it got to the sound of a real TX81Z. The specs indicated that they actually spent time and resources on re-creating the distinctive character of the Yamaha D-to-A converters, so I was more than a little intrigued.

The user interface is brilliantly designed for an FM synth. Everything is on one page, so there's very little fussing around whether you're modifying one of the 128 factory presets or creating your own. It's all in plain view and as a sound designer, I love that kind of attention to detail.

As with the 81Z, there are four operators, each with the same eight unique waveforms that really defined the sound of the Yamaha. Every operator includes the same ten parameters, neatly laid out in a row: level, ADSR envelope, tuning, waveform, LFO depth, velocity sensitivity, and keyboard tracking. With all these parameters within easy reach, it's quite clear what's going on with your settings as you program.

Another lovely design touch is the way Primal Audio implemented the TX81Z's algorithm selector. As you flick through these routing options, there are clear lines indicating the configuration next to each operator's on/off switch, so you can always see at a glance which ones are carriers and modulators.

Also included is the 81Z's selection of eight microtuning modes, which include academic options such as Werckmeister and Valotti-Young.

Snap Judgment

PROS Spot-on re-creation of Yamaha's classic four-operator synths. Brilliantly designed user interface makes editing sounds a breeze. Unison mode adds needed thickness to FM sound.

CONS You still need to have a working knowledge of FM to edit your sounds intelligently.

Bottom Line

Better than a real TX81Z in every way.

$9.99 download
primal-audio.com

The LFO controls include the TX81Z's waveforms, along with both tempo-sync and triggered modes. Even the simple ramp-based pitch "envelope" is in place.

Primal Audio's enhancements to the architecture are straightforward and functional. There's a unison knob that can double, triple, or quadruple-layer FM4's voices for an added thickness that was beyond the original's scope. A "model" switch toggles between three different Yamaha D-to-A characteristics, with the most extreme option reducing the presence and adding digital noise to the output, just like a vintage unit. Finally, there's a simple arpeggiator with up, down, up/down, and random modes. I've always loved random arpeggiators, so this addition really made me smile.

As for iOS features, CoreMIDI and Inter-App audio are in place, with Audiobus planned for an update by the time you read this.

After reviewing iOS apps for over five years, I've gotten pretty finicky about "me-too" apps that don't really bring anything new to the table. FM4 is anything but that. It's a distinctive soft synth that does a fantastic job of capturing the sound of Yamaha's four-operator FM synths of yesteryear, with the added bonus of a brilliantly designed interface. This may be Primal Audio's first synth, but I doubt it will be their last.

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ERIC M. TOWNSEND

5 THINGS I'VE LEARNED ABOUT Using Computers On Stage

BY JULIAN VELARD

DURING MY 15-YEAR CAREER AS A PERFORMER AND MUSICIAN, I'VE ALWAYS looked for ways to bring the studio experience to the stage. This pursuit inevitably led me to use a computer as the heart of my live setup. Integrating a laptop seamlessly into your gig is a daunting challenge, with a steep learning curve and thousands of opportunities for system failure. With each potential programming pitfall, there's a practical real-world problem in waiting, especially if you're setting up your rig in a rush. Here are five things I've learned from the cold, hard experience of working with computers onstage.

Singer, songwriter, keyboardist and educator **Julian Velard** has made a name for himself both in the U.S. and abroad. He recently released a concept album about his hometown of New York City entitled *If You Don't Like It You Can Leave*, and he has penned songs for artists as diverse as Olly Murs and the New York Knicks. Find out more at www.julianvelard.com.

1. Simpler Equals Better

As we try to re-create the experience of a record for a live show, it's easy to get carried away, using load-heavy sample banks, complicated triggers for backing tracks, and involved techniques like live looping. Remember that it's the audience's experience and our ability to connect with them onstage that makes a show great. No matter how cool or tricky the thing is that you're doing, if the audience doesn't perceive it, it's useless. Add to that the risk of failure, and whatever the effect is, it ultimately isn't worth its toll on your concentration and confidence. The simpler and safer *musical* solution is always your best option.

2. Bring a Snake

If you're using more than two outputs (i.e. stereo L/R), come to the gig with a snake (XLR or whatever connections are appropriate) that is *labeled*. Unless you have your own soundman who's familiar with your setup, you can't expect the engineer to understand your show instantly. By routing outputs like keyboards, synth bass, backing tracks, and an FX send separately, you give the engineer more control to mix your gig. Also a balanced XLR snake can eliminate the need for multiple DIs—a piece of gear many venues have been known to skimp on.

3. Power Your USB Gear

A fair percentage of USB and FireWire interfaces and MIDI controllers are bus-powered these days, but this doesn't mean you shouldn't bring a separate power supply for yours. By drawing power from the computer, you are taxing its resources unnecessarily. I've found that things run a lot more smoothly when your gear draws its power separately.

4. Secure Your Connections

Your entire gig is riding on the cable that connects your computer to your interface, so secure and guard it with your life. If the connection between your computer and interface is faulty, not only can it result in distortion and failure, it can cause the cardinal sin of performing with computers, *rebooting*. Remember that if a musician can trip on something, he or she will. So keep this cable clear from all foot traffic.

5. Map Your Controller

This one sounds simple, but the ramifications are endless. There is nothing more distracting to an audience than a musician fiddling with a computer during a show. It's important to run your set at home and predict any adjustments, switches, or triggers you will need to make. You won't have the time, presence of mind, or skill with a trackpad to adjust software faders mid-gig. Always anticipate your performance needs by mapping your controller beforehand.

Julian Velard plays "No One's Getting Married Tonight."

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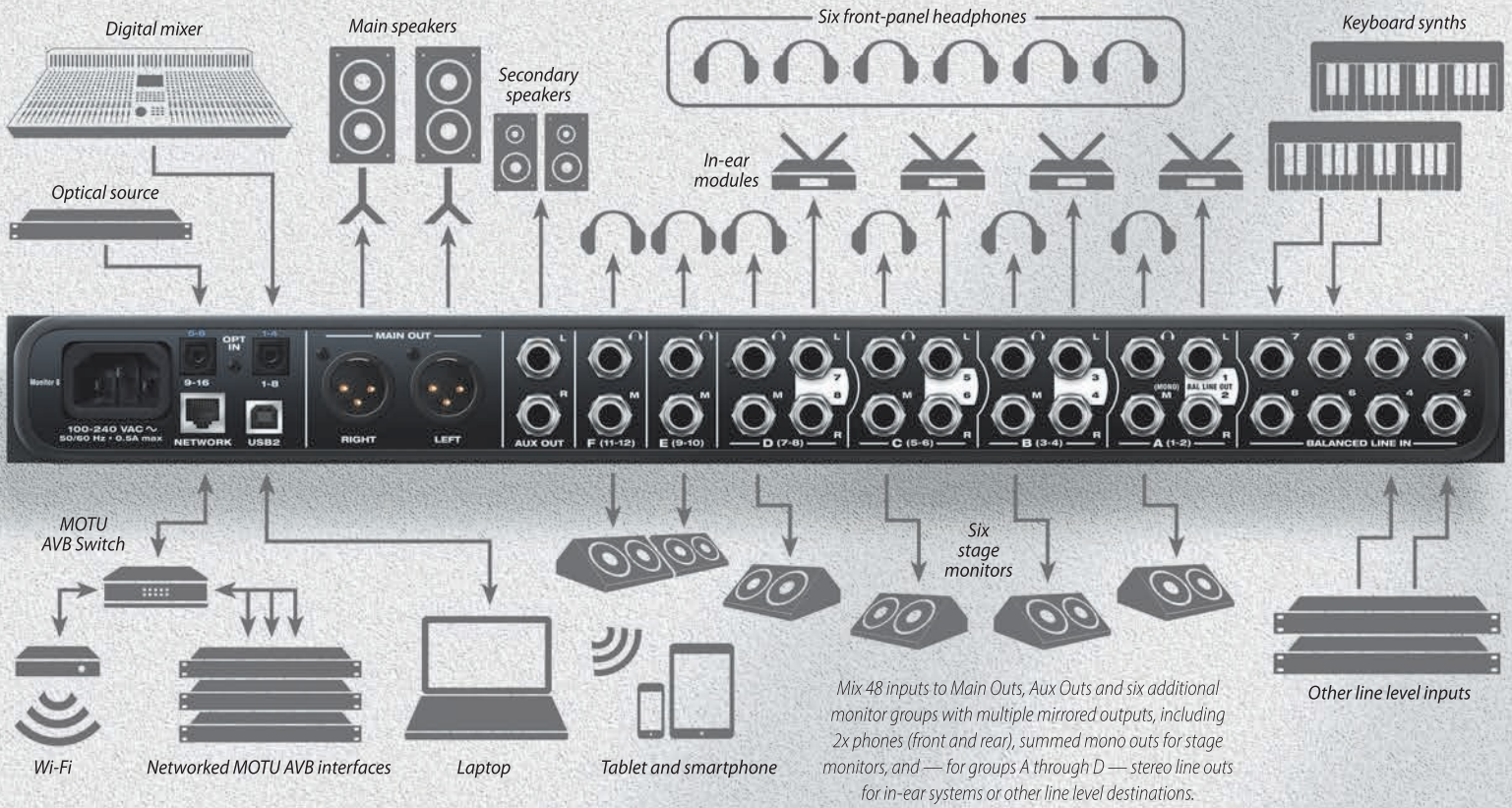

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